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APIARY OF EDMUNDO G. CORRADINE, E. U. COLOMBIA, SO. AMERICA.

PUBLISHED BY



THE A. I. ROOT COMPANY, MEDINA, OHIO, U. S. A.

Important Announcement.

GOOD NEWS

to

**All Students and Lovers of Nature, and to
All Interested in Education.**

**The Establishment of ARCADIA
on Unique Lines as a**

GREAT NATURE-STUDY INSTITUTION.

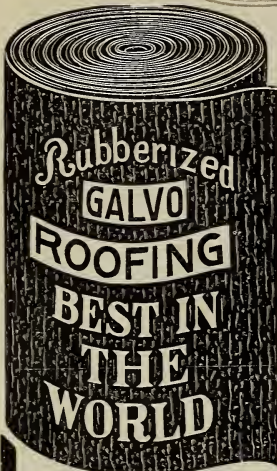
(Through the aid of a philanthropist whose
name is withheld by request.)

Arcadia is to be a "village" of portable buildings devoted to various phases of natural science. The buildings are to be arranged in the form of a court covering more than a half-acre of ground. There is to be an astronomical observatory, "Home" of The Agassiz Association, biological laboratories, vivaria, aquaria, Clearing House (for circulating specimens), pet-houses, insectary, photograph gallery, experimental rooms, offices, lecture hall, etc. Within the court made by the surrounding buildings are to be a garden and plant-beds for experimental purposes.

In brief, it is to be an epitome of the essential features of zoological park, biological laboratories, and experimental horticultural grounds.

If the experiment proves a success upon two years' trial, it is promised that the entire equipment will be rebuilt in larger fire-proof buildings (with more extended equipments for study and experiment). The tests of success are the co-operation and interest of naturalists of all ages in all parts of the world. Full particulars in the January number of "The Guide to Nature," Stamford, Conn. Single numbers, 15c. Subscription for one year, \$1.50.

EDWARD F. BIGELOW, Director of Arcadia, Stamford, Conn.



READY ROOFING 50¢ PER SQ.

At this price our "Gem" brand ready roofing, 108 sq. ft. to the square. The best bargain ever offered. Only 3,000 squares for sale. No supplies included at the price. We do not recommend the purchase of this grade; read our wonderful offer on the best roofing in the world.

Rubberized Galvo Roofing!

The highest-grade Roofing covering manufactured. Guaranteed absolutely equal or superior to any other kind manufactured. Positively covered by a binding guarantee that protects you in every way. You make no mistake and are not gambling when you buy this grade. We affirm that no other concern anywhere can make you a lower price on ready roofings that we can. We have for sale a large quantity of roofing purchased by us direct from the manufacturers. It is the regular grades made by them. It is not in continuous lengths to each roll. A roll of roofing usually comes in one continuous piece, but the roofing we are offering is put up two to five pieces to a roll. That, of course, does not affect the quality at all. In fact, some people prefer it, as it is easier to handle. We furnish plenty of material, so that all laps can be properly taken care of. **We are not allowed to tell you the name of the manufacturers for confidential reasons.** We are putting it out under our own brand and name, and are backing it with this guarantee, viz: That it will positively give as good service and last as long as any ready roofing manufactured. If there is any roofing better than this, we haven't heard of it. **Our price 5 percent below what is usually asked for roofing of similar quality. One ply, per square, \$1.25; two ply, per square, \$1.40; three ply, per square, \$1.75.** The lowest prices ever quoted on good roofing.

FREIGHT PREPAID IN FULL BY US,

if your home is within 400 miles of Chicago, or east of the Mississippi River, and north of the Ohio River. Rates to other points on application. **This freight-prepaid proposition** refers only to the Rubberized Galvo Roofing in this advertisement, and does not include the **50c per square Roofing** offered above, nor does it apply to any other item advertised. Here is a roofing that is slate color, tough leather-like material. It is made of a combination of wool felt and highest grade of natural asphalt. It is water-proof, lightning-proof, and fire-proof. Water runs off it as it does off a duck's back. It will not taint rain water. It makes buildings warmer in winter and cooler in summer. It is not affected by acids, alkali, or gases. It has a rubbery surface, and on this account we call it "RUBBERIZED GALVO ROOFING." It does not contain coal tar, residuum, nor any thing that will deteriorate in the weather. The best grade of natural asphalt known is used in its manufacture. It will positively give lasting service. It will wear as long as the building stands, provided you give it ordinary care. It does not require a coating after it is on the roof. It toughens and hardens with age. About a year after laying it we would recommend that you give it a coat of mineral paint, and every few years repeat the operation. We furnish with each order sufficient cement to make the laps, besides nails and caps to put it on. Any one with an ordinary hammer can lay this roofing. You can put it on over shingles without removing same. It is scientifically manufactured to take care of the laws of contraction and expansion. It requires but little time to put it on your roof. Two men can lay ten squares a day. It is appropriate for any kind of building, either factory, dwelling, barn, store, church, etc. It is also used as siding or lining, especially the lighter grades. **It is put up 108 square feet to the square.** Some rolls are put up one square and some two squares to the roll. You can lay it from left to right or from eave to comb, whichever is the easiest to apply. We urge that you

WRITE FOR FREE SAMPLES!

Write to-day for free samples, or send us your order direct. We will ship C. O. D. to any point where a deposit of \$5 percent in cash accompanies the order. Balance to be paid when material reaches destination.

SPECIAL FENCING SALE!



We offer **100,000 rods** of heavy galvanized fencing, either diamond mesh, like illustration, or square mesh. Fencing that is guaranteed equal to the very highest grade manufactured. We have it in all widths. It is put up regularly in 10 and 20 rod reels. Price per rod as follows: 18-in., **14c**; 20-in., **15c**. Other heights in proportion. 26-in. Poultry Fencing, 2-in. mesh, per rod, **23c**. Galvanized Barbed Wire, **\$2.45** per 100 lbs. Two or four point regular galvanized Barbed Wire, put up on reels, per 100 lbs., **\$2.45**. Painted Barbed-Wire, per 100 lbs., **\$2.25**. Our Special Galvanized high-grade light-weight Barbed Wire



put up on 80-rod spools, price per spool, **\$1.80**. Painted Twisted Wire per reel, **\$2.00**. Galvanized Fence Wire, **\$1.50** per 100 lbs. At this price we will supply you new Galvanized Wire Shorts. They are put up 100 lbs. to the bundle. By shorts we mean wire in lengths from 50 to 200 ft. Good for all general purposes. Our price on gauges 11, 12, and 14, **\$1.50** per 100 lbs. Other gauges in proportion. BB Telephone Wire No. 12, **\$2.85** per 100 lbs. Write for price list and catalog.



Mixed Wire Nails, Per Keg, \$1.60

These Nails were on board barge sunk in the Ohio River, and are more or less rusty. They are practical for use and make a fine handy assortment. Put up mixed, just as they come, 100 lbs. to the keg.

Sizes from 3 to 40 D. Per k.g. **\$1.60**. Nails, straight sizes, just one kind to a keg, with slight surface rust, sizes 3 to 60 D; also Tasting-Nails and Finishing-Nails, all kinds: price per keg of 100 lbs., **\$2.00**. First-class bright, clean, new Nails, 20 D common, per keg, **\$2.20**.

100,000,000 Ft. of New Lumber at Wrecking Prices!

We purchased direct from the Mills, at various Forced-Sales, thousands of carloads of high-grade, first-class, brand-new lumber. We bought it at sacrifice prices and we are offering it for sale at a reasonable margin of profit. This is an opportunity of a lifetime to buy the very best Lumber manufactured, at prices less than the dealer or jobber can ordinarily buy it for. Send us your bill for estimate. Write us to-day.

CHICAGO HOUSE WRECKING CO., 35th and Iron Sts., CHICAGO

Send for Free Catalog No. 688

We publish a book of some 500 pages, containing a general record of our goods, and showing millions of dollars' worth of merchandise secured by us at Sheriffs' Sales, Receivers' Sales, and Manufacturers' Sales. It lists Building Material and Supplies, Machinery, Roofing, etc.

Honey Markets.

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchant. When sales are made by commission merchants, the usual commission (from five to ten per cent), cartage, and freight will be deducted, and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage, and other charges, are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

NEW YORK.—There are no new features to report. The market continues decidedly dull, and very little is moving. As we stated in our last report, for the time being we can not encourage shipments of comb honey of any kind. The demand is fair for extracted honey. We quote California white sage at 9; light amber, 7½ to 8; amber, 6½ to 7; white-clover, 8 to 8½; West India and Southern, 60 to 75 cents per gallon, according to the quality. Beeswax, quiet at from 28 to 30.

HILDRETH & SEGELKEN,
265 Greenwich St., New York.

Feb. 5.

INDIANAPOLIS.—There is a very favorable demand for best grades of both comb and extracted honey; and while jobbing houses are fairly well stocked, very little honey is now being offered by producers. I note some arrivals of fancy comb at 12½; No. 1 white, 12; white-clover extracted, in five-gallon cans, 7. Some amber honey is being offered, but the demand is so slight that the prices are irregular. Beeswax is steady at 29 cents cash or 31 in exchange for merchandise.

Feb. 4.

WALTER S. POWDER, Indianapolis.

LIVERPOOL.—The market continues very firm. We quote No. 1 Chilean, 6 cts.; California and Honolulu are retailing at late rates 10 and 7 cts. respectively for the best qualities. Quotations remain unchanged—Chilean, 5 to 7½; Peruvian, 3½ to 4½; California, 8½ to 10½; Jamaican, 4½ to 7½; Haitian, 5½ to 7. Beeswax continues firm. African, 26½ to 28½; American, 30½ to 34; West Indian, 29½ to 33; Chilean, 30½ to 36½; Peruvian, 34; Jamaican, 35 to 35½. TAYLOR & CO.,
Jan. 11. 7 Tithebam St.

CINCINNATI.—The demand for honey is improving somewhat, and it is evident that the cold weather has stimulated the appetite for both comb and extracted honey. Comb honey is selling to the grocer at 14 to 14½ for fancy and No. 1 grades; extracted white-clover honey in 60-lb. cans is selling at 8 to 9; amber, in barrels, 5½ to 6½, according to the quality and quantity purchased. For choice yellow beeswax we are paying 29 in cash and 31 in trade, delivered here. Fancy and No. 1 comb honey find a ready market here.

THE FRED W. MUTH CO.,
Cincinnati, O.

Feb. 6.

CINCINNATI.—The market on comb honey is very quiet. Some sales are being made at 14 for No. 1 white, but the demand is not brisk. White-clover extracted is selling at 8 in cans; sage, 9; amber, in barrels, 6. Beeswax sells slowly at 32.

C. H. W. WEBER,
Cincinnati, O.

Feb. 6.

SCHENECTADY.—The same dull tone as noted in my last report continues; and while there is some demand for extracted, especially for dark in 60-lb. cans and 160-lb. kegs, there is scarcely any call for comb. However, the stock on the market is not large.

CHAS MACCULLOCH,
Schenectady, N. Y.

Feb. 6.

CHICAGO.—The situation as regards the honey market is not different to-day from what it was several weeks ago. Trade is very dull and unsatisfactory; and in order to move goods it is necessary to make concessions in price. The above applies mostly to comb honey. There seems to be a better demand for extracted. We quote fancy white comb, 13 to 14; No. 1 white, 12 to 13; No. 2 white and light amber, 10 to 12; medium amber and buckwheat, 9 to 10; dark and more or less damaged honey at correspondingly less prices. White-clover and basswood extracted, 60-lb. cans, two cans to the case, 7½ to 8; same in barrels or half-barrels, ½ ct. per lb. less; Southern California light-amber extracted, in 60-lb. cans, two cans to the case, 7 to 7½; Utah water-white alfalfa extracted, 60-lb. cans, two cans to the case, 7½ to 8. Bright pure beeswax, 30 to 32.

Feb. 10.

S. T. FISH & CO., Chicago.

TOLEDO.—Since our last the market on comb honey has weakened somewhat, and sales are not plentiful. We are quoting fancy comb honey at 14½ to 15½; No. 1, 14 to 14½; no demand for lower grades. Buckwheat comb honey would probably bring 13 to 14; extracted white-clover in barrels or cans, 7 to 8; amber in barrels, 6 to 6½. Beeswax, 28 to 30.

THE GRIGGS BROS. & NICHOLS CO.,
Toledo, O.

Feb. 5.

SAN FRANCISCO.—The honey market shows no life whatever, as the trade is well supplied and shows no interest in the market. There is plenty on hand for all current needs; and while first-class comb might find a ready sale the general offerings of extracted still in the hands of growers receive but little attention. We quote comb, 10 to 13; water-white extracted, 7½; white, 6½ to 6¾; light amber, 5 to 5½; dark amber, 4¾. Pacific Rural Press, Feb. 7.

KANSAS CITY.—The market is well supplied with both comb and extracted, with some improvement in the demand, and the surplus stock in the hands of growers is practically all shipped. We look for a little firmer feeling. We quote No. 1 fancy comb, 11 to 12; No. 1 amber, 10 to 11; white extracted, 7½ to 8; amber extracted, 7 to 7½. Beeswax, No. 1, 25 to 28.

C. C. CLEMONS PRODUCE CO.,
Kansas City, Mo.

Feb. 8.

BOSTON.—White fancy comb honey, 15; No. 1 ditto, 14; white extracted, in 60-lb. cans, at 9; light amber, 8. Wax, 30.

BLAKE-LEE CO.,
4 Chatham Row, Boston, Mass.

Feb. 5.

COLUMBUS.—No activity in the market; demand very light. We quote fancy white comb, 14; No. 1, 13; No. 2, 12; amber, 11. We are not advising shipments at present.

Feb. 4.

EVANS & TURNER, Columbus, O.

I. J. STRINGHAM
105 PARK PL.

New York City

furnishes bees, and every kind of material bee-keepers use.
1909 catalog ready. Liberal discount on early orders.

Apiaries: . Glen Cove, L. I.

CHAS. ISRAEL & BROS.

486-490 CANAL ST., NEW YORK

WHOLESALE DEALERS AND COMMISSION MERCHANTS IN

Honey, Beeswax, Maple Sugar and Syrup, etc

Consignments Solicited :: Established 1875

WE HAVE TIME

TO HANDLE ONLY THE BEST

THAT is why we handle, recommend, and sell so many MUTH SPECIAL DOVETAILED HIVES. From the selection of the seasoned, straight-grained, high-grade lumber (which costs US more than we could buy "good-enough" stock for, if we cared to use it) to the finished, non-warping, thoroughly satisfactory hives, OURS ARE THE BEST. Do you think we could sell TEN CARLOADS of inferior hives in a year? Not much! But we can—and DID—sell ten carloads of MUTH SPECIAL hives in one year, because they MADE GOOD.

This is the standard we maintain in ALL our bee-supplies. Whatever you get here, whether it is a bee-veil or a hundred hives, you can rest well o' nights, knowing that the goods are UP TO THE MUTH STANDARD, than which there is no higher. Goods have to be extra special to be handled by us, or to get into our catalog. WE ARE BUILDING OUR SUCCESS ON THE SATISFACTION OF OUR CUSTOMERS. Going to send for our catalog to-day, aren't you?

THE FRED W. MUTH COMPANY

No. 51 Walnut St.

THE BUSY BEE-MEN

Cincinnati, Ohio

Extracted Honey Wanted

We are always in the
market.

If you have any to sell, mail
small average sample to

**NATIONAL
BISCUIT COMPANY**

Purchasing Department,

Washington Bvd. & Morgan St.
CHICAGO, ILL.

WE WILL BUY AND SELL

HONEY

of the different grades and kinds

If you have any to dispose of, or if you
intend to buy, correspond with us.

We are always in the market for WAX
at highest market prices.

HILDRETH & SEGELKEN

265-267 Greenwich St., 62-66 Murray St.
NEW YORK

HONEY WANTED

Wanted to contract for 20,000 lbs. comb honey in shallow
extracting-frames $5\frac{3}{8}$ inches deep.

Requirements: Honey to be produced on full sheets of extra-
thin super foundation, in shallow extracting-frames, not wired.

Grade: Same as first three grades in GLEANINGS grading-
rules—Fancy, A No. 1, and No. 1 (all included as one grade).

Quality: Honey must be produced from clover, basswood, or
raspberry.

Combs must be even and of uniform thickness—not over one
inch.

Will furnish frames, shipping-cases, and carriers for re-ship-
ping the honey.

Bee-keepers in Michigan or Ohio interested in this proposition,
write, stating approximate number of frames you can furnish, and
price wanted for the honey per pound, *net weight*, F. O. B.
Medina. Address

HONEY BUYER,

c-o Gleanings in Bee Culture,
Medina, Ohio.

BEE SUPPLIES

We have a new stock of goods on hand for 1909 and are
able to fill your orders, *without delay*, at factory prices.

SO send a list of the supplies you need, and we will be glad to
quote you our best prices.

DO IT NOW and secure our **Special Early-order Discounts.**
If you care to save on freight charges, send your orders to us.
No charges for drayage.

C. H. W. WEBER

HEADQUARTERS FOR ROOT'S GOODS

Office and salesroom 2146-48 Central Av.

CINCINNATI, OHIO

NOTICE.—On account of the death of my father, Mr. C. H. W. Weber, it is necessary to make it understood that the business
will be conducted the same as usual; there will be no change whatever. Soliciting your patronage, I am
Yours truly, CHAS. H. WEBER.

GLEANINGS IN BEE CULTURE

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BETTER and BRIGHTER

Writing an advertisement of the Review is to me a most
DIFFICULT TASK.

It consists, of course, in telling how good it is, and that sounds like a mother boasting of her children. But it is the only course open. If the Review is to be advertised, I must write the advertising, even if it does smack of egotism.

But I am sincere in all that I say. I believe it is strictly true. Although I make the Review, I believe that I can

FAIRLY JUDGE

of its value—of any rise or fall in its helpfulness, brilliancy, or freshness. I know that of late it has been

FORGING AHEAD

by leaps and bounds; and this is not wholly an editorial opinion, as many old subscribers have written their pleased appreciation.

One thing that has helped to bring about this improvement is that the last few years have witnessed a gradual but steady increase of the subscription list. In years past, every suggested improvement was confronted with the question: "Can it be afforded?" But the time is rapidly approaching when the cost of an improvement need not prevent its adoption. An increased subscription list enables one to make a better journal, and a better journal brings an increased subscription list.

The Review has always been an excellent journal, but I feel, somehow, that it is now entering upon a period of

USEFULNESS AND PRESTIGE

such as its editor little dreamed of when he launched his modest venture. It is printed upon the best paper that it is possible to buy; it is using more and better engravings; it is not possible to secure better correspondence than that found upon its pages; while

THE SAME FINGERS

that write the editorials help, each year, in producing tons of honey. As one subscriber recently wrote: "The Review fairly hums with practical ideas from practical men."

No written description can equal the sight of the article itself; and I wish that you could see the

LAST THREE ISSUES

of the Review. Send me ten cents and I will send them to you, together with a four-page circular, making some exceedingly low clubbing offers. The ten cents may apply on a subscription, if sent in later.

W. Z. HUTCHINSON, Flint, Mich.

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We are more centrally located, have the advantage of being able to ship direct over THIRTY different RAILROADS and STEAMBOATS, and as we always carry several carloads of

ROOT'S SUPERIOR BEE-SUPPLIES

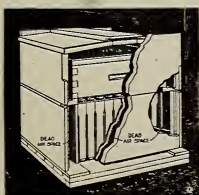
in stock, we are, therefore, in position to furnish the best bee-goods at the very lowest prices. *This month* we can quote a SPECIAL CASH PRICE, if you will send us a list of your requirements, either for immediate or future delivery.

BEESWAX

We will buy all you can ship us, at market prices for cash or in trade. Write us to-day.

If interested in poultry, write for catalog No. 8.

BLANKE & HAUKE SUPPLY CO.
1009-11-13 Lucas Ave. ST. LOUIS, MO.



Protection Hive.

The best and lowest-price double-wall hive on the market. It will pay to investigate. 1909 catalog now ready. Send for one and let us figure on your wants. Beeswax wanted.

A. G. WOODMAN CO., . Grand Rapids, Mich.

GLEANINGS IN BEE CULTURE

Devoted to Bees, Honey, and Home Interests

Established 1873

Circulation 35,000

72 pages Semi-monthly

A. L. BOYDEN, Advertising Manager

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Twenty-five cents per agate line, flat. Fourteen lines to inch.
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 Preferred position, inside pages, 30 per cent additional.
 Preferred position, inside cover, 50 per cent additional.
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 Cash discount if paid in 10 days, 2 per cent.
 Bills payable monthly.
 No medical or objectionable advertising accepted.
 Column width, 2 $\frac{3}{8}$ inches.
 Column length, 8 inches.
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 Forms close 10th and 25th.

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New Goods for 1909



Good News for the Southwestern Bee-keeper

The strenuous season of 1908 left our stock of bee-supplies in a depleted condition. We have now replenished our stock with large shipments of the finest bee-goods ever seen in the Southwest. These are

Root's Goods Exclusively

We have not dared to experiment with any other line of bee-supplies; and from the looks of our new goods we shall never need to. They are "as fine as silk." We should be glad if our customers would come and see them. You will be pleased with the best ever. Come along and enjoy a day in San Antonio, picking out what you want while your wife goes shopping. Seeing is believing, and we would far rather hear you puff our goods than do it ourselves. But we honestly believe we have not only the largest line of bee-supplies in Texas, but also, by far, the best in quality.

Shipping-cases for Comb Honey.

500	12	4	3 and 2 in. glass.	350	6¼	3	2 and 3 in. glass.
350	10	4	2-in. "	550	7½	4	3-in. "
200	12	2	2-in. "	250	7½	3	3-in. "
200	16	2	2-in. "	300	9¼	4	3-in. "
250	8	3	2-in. "	50	9¼	3	3-in. "

If you can use any of the cases in the foregoing list we will quote very attractive prices to clean them up. Please write at once if you want any.

Early-order discount—2 per cent for February.

Beeswax Wanted.

We are in fine shape to use large supplies of beeswax. Bee-keepers in Texas, Mexico, New Mexico, Arizona, Oklahoma, and Louisiana should bear this in mind. In our foundation department we have a force of expert workmen who thoroughly understand their work. In working the beeswax they are careful to retain the original fragrant odor of the hive. It takes skill and care to do this, but we do it. If you desire *your* beeswax worked up in this way send it here. We buy wax outright for cash, and we also do considerable trading for bee-supplies.

Toepperwein & Mayfield

1322 South Flores St.

San Antonio, Texas

Write to us
your wants.

Catalog
free.

BEESWAX WANTED

WE are always in the market for beeswax, and will pay the best market price. We used last year in the manufacture of **Comb Foundation** over

EIGHTY TONS

and are likely to need fully as much for this year's trade. Send your wax direct to us, being sure to pack it carefully for safe shipment, and mark it so we can easily tell who sends it. Write to us, at the same time sending a shipping receipt, and stating weight of shipment, both gross and net.

We are paying at this date for pure average beeswax delivered here, 29 cents per pound cash, or 31 cents in trade. On choice yellow wax we pay a premium of one to two cents a pound.

THE A. I. ROOT COMPANY, MEDINA, OH IO

Bee Supply House

Everything for Bees

We manufacture the latest approved supplies and sell direct at factory prices. We're old-time bee people in abeecountry. We know your needs. Early order discounts. Send for catalog. Don't buy till it comes.

LEAHY MANUFACTURING CO.
10 Talmage St., Higginville, Mo.

1699 South 13th St., Omaha, Neb.

Also E. T. Flanagan & Sons, Box 2, Belleville, Ill.



YOU CAN SAVE

3%

by ordering your Bee-supplies now.

The A. I. Root Co.'s goods are goods of quality.

Pilcher & Palmer, Mgrs.
1024 Mississippi Street
St. Paul, Minn.

We buy wax.

Send for our catalog.

Poultry and Bee Supplies

*This
is where we
shine.*

A large and complete stock always on hand, and all the latest goods made.

Prairie State Incubators and Brooders,

The most reliable machines made to-day; they are guaranteed to please, or money will be refunded. How does that sound?

Root's Bee Supplies

The best made, the most satisfactory, and, above all, the cheapest in THE END; no misfits or knotty stuff; every piece fits in its place; the kind you have always had, and we know the kind every successful manager of bees wants. **Root's Quality** counts with us.

Send in your orders; we will do the rest.

Our new 1909 catalog will be out soon. Send us your name for one, and be in the lead. They are free.

GRIGGS BROS. & NICHOLS CO.

523 Monroe St., TOLEDO, OHIO.

Listen!

We wish to announce that we have purchased The A. I. Root Co.'s supply business for Western Pennsylvania from Mr. John N. Prothero, of DuBois, Pa., and are ready to fill orders promptly with a full line of supplies.

Root's Goods

always give satisfaction. Three-per-cent discount in February on cash orders, from catalog prices.

Geo. H. Rea has turned his entire bee business over to us. We can supply you with the very best Italian bees and queens. Orders booked now for spring delivery about May 1. Every queen purely mated, each, \$1.00; dozen, \$11.00.

Two-frame nucleus and queen, \$2.00; very strong colony, \$10.00.

Three-frame nucleus and queen, \$3.50; medium colony, \$8.00.

Four-frame nucleus and queen, \$5.00; good hybrids, \$5.00. Bees in 8 or 10 frame hives; good queen in each.

We can supply you with any thing in the

Bee Line.

REA BEE & HONEY CO.,

Reynoldsville, . . . Pennsylvania.

HILTON'S Strain of Bees and What They Did

Dear Friend Hilton:—The two three-frame nuclei I received of you May 21 were received in fine condition, and the red-clover queens proved themselves worthy of the name. I never saw finer or gentler bees. They were transferred to ten-frame hives and full sheets of foundation. I now have four strong colonies, with plenty of stores for winter, and have taken 195 lbs. of fine extracted honey, mostly clover. I want two more nuclei for next spring delivery, and my neighbor wants another. You may use this letter or any part of it as you choose.

Gratefully yours,

Rhineland, Wis., Sept. 14, 1908. G. C. CHASE.

In addition to the above I have sold friend Chase about \$200 worth of ROOT GOODS, which deserve some credit for the above results—the best of every thing is none too good. ROOT'S GOODS and GLEANINGS helped. If you are not taking GLEANINGS, WHY NOT? For an order of \$10.00 before Jan. 1 I will give GLEANINGS one year; \$20.00, two years; \$30.00, three years; or you may have GLEANINGS from now to the end of 1909 for \$1.00; two years for \$1.50; three years for \$2.00. SEND FOR MY 40-PAGE CATALOG. CASH FOR BEESWAX, or will exchange goods for it.

GEO. E. HILTON
FREMONT, MICH.

WESTERN PENNSYLVANIA, WEST VIRGINIA,
and EASTERN OHIO

BEE-KEEPERS

You can get any thing you want for bees, at
STAPLER'S SEED STORE
412-414 Ferry St., PITTSBURG, PA.
Agents for Root's goods.

VIRGINIA BEE-KEEPERS

Get new stock and finest goods by ordering your supplies at once.
Danzonbaker hives a specialty. Price list on application.
W. E. TRIBBETT, STAUNTON, VIRGINIA

IMPROVED DAN-ZE GUARANTEED 'ALL RIGHT'

COLD MEDALS

St. Louis 1904

Jamestown - 1907



**IS THE BEST,
STRONGEST,
COOLEST,
CLEANEST,
CHEAPEST,
and LARGEST
SMOKER SOLD
FOR A DOLLAR.**

With the side grate combines hot and cold blast deflecting part of the air back and over the fuel; COOLS as it expels the smoke, while part fans the side and bottom till all consumed. The Double-walled case, 3 1/2 inches in diameter, has asbestos-lined sides and bottom, keeping all cool.

The projecting hinge-strap protects the smoke exit, and renders easy opening the one-piece cap.

THE VALVELESS metal-bound bellows combines simplicity, utility, and durability.

Five years increasing sales justify us in extending our **GUARANTEE OF PERSONAL RESPONSIBILITY** for full satisfaction or REFUND of price on all our smokers sold by US OR OTHERS.

Price, \$1.00; two, \$1.60; mail 25c each extra.

DAN-ZE HIVES with metal Propolis-proof Guards. ROOT'S Goods at Root's prices, early-order discounts. Write us for any thing you need. Free circulars for yourself and your friends.

If you want a home in this genial Sunny South Land, we will help you find it.

F. Danzenbaker, Norfolk, Va., or Medina, Ohio

W.H. Laws

is again on hand with his famous stock of bees and queens for the season of 1909. Fine well-bred queens are his specialty; and in all the queens mailed during the past 18 years there is not a displeased customer that I know of. On the other hand, letters of praise come from every source. Mr. Wm. Hughes, of Washington, D. C., writes that he has been handling queens for the past twenty years, and he has never found any that equal or please him so well as the two dozen he bought of me last season. I can and do mail queens every month in the year, California and Cuba taking over 100 in the past month of December. I will mail queens from now on at the one price of \$1.00 each or 6 for \$5.00. Breeding queens, each, \$5.00. Write for prices on quantity lots. Address **W. H. LAWS, Beeville, Bee County, Texas.**

Oldest Bee-paper in America

This Coupon Worth 35 cents

(New Subscribers Only)

Name

Postoffice

State

If not now a subscriber and you want one of the most helpful aids to successful bee-culture—a paper that tells how to make your bees pay—you should subscribe for the

AMERICAN BEE JOURNAL

A 32-page illustrated 75-cent monthly. It tells all about the best way to manage bees to produce the most honey; with market quotations, etc. A dozen different departments—one for women bee-keepers. Best writers.

It Will Increase Your Honey-Money

If you will send us your name and address with 40 cents (stamps or coin) together with this coupon, we will send you a trial trip of our Journal for 12 months. Order now and let us begin with this month's line number. Address,

American Bee Journal, 118 West Jackson, Chicago, Illinois

Now in its 48th Year

Seasonable Supplies

This is the season to buy your bee-hives. The discount pays your freight expense, and you can get them ready for the bees during the quiet winter months. We have the

Root Dovetailed Hive Danzenbaker Hive Root Chaff Hive

Each the best of its kind, and all "Root Quality." Our central location gives you the best of service with low freight charges. We want to quote you prices on the hives you will need.

*Send for catalog.
Beeswax wanted.*

M. H. Hunt & Son, Lansing, Mich.
Opposite Lake Shore Depot.

Bee Supplies

**for the Southern
States.**

WE are better prepared than ever before to take prompt care of all orders. We sell goods at factory prices and aim to keep our stocks well assorted. Write us for estimates on your list, or send the order right along and we will guarantee that you will be satisfied. We handle none but the best goods. Golden bees and queens a specialty. Send in your orders now and be sure of early delivery.

Root's goods exclusively.

HOWKINS & RUSH

241 Bull St. SAVANNAH, GA.

Field and Garden Seeds Bee and Poultry Supplies

The best quality bee-supplies. None better to be had. Now is the time to send in orders, and be ready for the rush season. All kinds of Garden and Field Seeds. Choice sweet-clover seed always in stock. A large variety of best seeds for the South. Bee-keepers and gardeners who also raise poultry will be interested in our large stock of poultry-supplies, the largest and most complete line in the South. Catalogs of all of the above lines on request. Send now, and get your orders in early. .



Texas Seed and Floral Company
Dallas, Texas

For 25 Years

I have supplied Southern Beekeepers
with

HIVES and SUPPLIES

and have given satisfaction.

Root's Goods Exclusively.

Prompt and accurate service.
Catalog mailed free.

J. M. JENKINS
WETUMPKA, ALABAMA

A GOOD INVESTMENT.

You can make no better investment than to take the discounts I am offering on bee-keepers' supplies. These discounts will diminish as the season advances; so the earlier you send in your order the better the investment. You can not afford to miss this special offer. Send in the list of the goods you want and get my net prices by letter.

My stock of Root goods is the largest and most complete carried in the West, and with carloads continually being added I am in position to meet every want of the bee-keeper, with promptness and satisfaction.

Write to-day for new prices and catalog.

JOS. NYSEWANDER,
565-7 W. 7th St. Des Moines, Iowa

\$15,000 STOCK

. OF .

Bee Supplies

on hand at Syracuse, N. Y.

Send in your orders, which
will receive prompt attention.

THE A. I. ROOT CO.
SYRACUSE, :: NEW YORK

PUBLICATIONS ON BEE CULTURE

Please use this order form by checking in the margin the items wanted

The pamphlets and booklets listed below are of more than ordinary interest:

- ☐ **My First Season's Experience with the Honey-bee.** By the "Spectator," of the *Outlook*, of New York. A ten-page leaflet detailing the experiences of this well-known writer. You will read the leaflet through before you lay it down. Free.
- ☐ **The Bee-keeper and Fruit-grower.** A 15-page booklet giving actual facts regarding the value of bees to fruit, and showing how bee-keeping may be doubly profitable to the fruit-grower. Fruit-growers are realizing as never before the necessity of having honey-bees in close proximity to their blossoming fruit. Free.
- ☐ **Bee-keeping for Sedentary Folk.** A 24-page leaflet reciting the actual experiences of an amateur bee-keeper, showing what equipment is best, points derived, etc. Free.
- ☐ **Catalog of Bee-keepers' Supplies.** Our complete catalog will be mailed free to any address on request.
- ☐ **Transferring Bees.** A 14-page booklet giving instructions and illustrating appliances. No need to keep your bees in old out-of-date hives when they can easily be transferred into new hives and earn profits for you. Price 10 cts.
- ☐ **Bee-hunting.** Gives information necessary to enable one who is active and intelligent to engage in bee-hunting with success. It is well gotten up and worth the price, which is 25 cents.
- ☐ **Spring Management of Bees.** A 14-page booklet detailing the experiences of some successful bee-keepers, and giving instructions on this oftentimes perplexing matter. Price 10 cts.
- ☐ **Habits of the Honey-bee.** By Dr. E. F. Phillips. A somewhat scientific handling of the habits and anatomy of the bee. Price 10 cents.
- ☐ **Bees and Poultry.** A 16-page booklet showing how well these two industries dovetail, and why every poultry-man should be a bee-keeper. Price 10 cents.
- ☐ **The A B C of Bee Culture.** A complete encyclopedia on bees, of nearly 540 pages, fully illustrated. \$1.50 postpaid; half leather, \$2.00.
- ☐ **Cleanings in Bee Culture.** A 64-page illustrated semi-monthly magazine, the leading exponent of bee culture in this country. Ten cents per issue, but to new subscribers we will furnish it six months for 25 cents.

This sheet may be used as an order sheet by properly checking on the margin your signature, and remittance, if required.

The A. I. Root Co., Medina, O.:

Please send me the items checked above; also booklet "Bees and Poultry," free. I inclose \$..... to cover the cost.

Name.....

Street Address or R. F. D.....

Town.....

G. B. C.

State.....

PROGRESSIVE APIARISTS

will find many interesting articles on apiculture in

The Journal of Economic Entomology

This journal is devoted to practical, applied entomology in the widest sense, and those interested in the latest results of studies and experiments in the control of insect pests will find in this journal the most recent results of the leading American entomologists. The proceedings of the Association of Economic Entomologists and the Association of Horticultural Inspectors appear exclusively in this journal. Sample copy, 10c. Subscription rate in United States and Canada, \$2.00. Published bi-monthly. 50 to 100 pages in each issue. Edited by Dr. E. P. Felt, State Entomologist of New York. Write

E. D. SANDERSON, Business Mgr., DURHAM, N. H.

BEE-SUPPLIES FOR SEASON OF 1909

Complete stock on hand, as our plant has been running steadily so as to take care of the demand for **bee-supplies** the early part of the coming season. We are practically overstocked at this time and advise those in need of **bee-supplies** to order now (shipments may be delayed until you want the goods) before the contemplated advance in prices all along the line. Lumber is dearer and labor has never been so high, but we agree to protect our patrons at present prices upon receipt of their orders at this time.

Being manufacturers we buy lumber to advantage, have lowest freight rates, and sell on manufacturers' profit basis. Let us quote you prices. Prompt shipment guaranteed.

MINNESOTA BEE SUPPLY CO., 123 Nicollet Island, Minneapolis, Minn.

R.Q. + P.S. = Sn.

"ROOT QUALITY" plus "PEIRCE SERVICE"
equals SATISFACTION.

You can prove this equation by sending your next supply order to

ZANESVILLE

Catalog Free.

2 per cent discount till March 1st.

EDMUND W. PEIRCE

136 W. Main St.

ZANESVILLE, OHIO

Mr. Bee-keeper:

If you have not yet bought your supplies, send me list of goods wanted for money-saving prices. Carloads of best goods. Best shipping facilities. Chicago freight rate to your station. Will equalize freight if you live at a distance.

Hives of best Michigan white pine.

Sections of best Wisconsin basswood.

Foundation, shipping-cases, and other goods at lowest price.

29c cash, 33c in trade for clean beeswax delivered here.

Catalog free. Bees for sale.

Order early and avoid the rush.

H. S. DUBY,
St. Anne, Illinois.

QUEENS--1909

HARDY GOLDENS—10 CENTS in coin will bring cage of live bees of this remarkably pretty and unexcelled strain as soon as can mail safely. Order now as "rotation" is the word.

Inquiries gladly answered.

CHAS. OSCAR FLUHARTY, SANDUSKY, W. VA.

SOMETHING SPECIAL IN SEEDS

We wish every GLEANINGS reader who is not already a customer would try our seeds and nursery stock. Below are some very special offers which are good for a limited time only. Better order one or more now before we are obliged to cancel them.

COLL. NO. 1. For 10c postpaid.

1 pkt. Rocky Ford Muskmelon.
1 pkt. Grand Rapids Lettuce.
1 pkt. Vegetable Marrow.
1 pkt. Wakefield Cabbage.
Catalog price, 30c.

COLL. NO. 2. For 50c postpaid.

1 pkt. Mattituck Cauliflower.
1 pkt. Grand Rapids Lettuce.
1 pkt. Klondike Cucumber.
1 pkt. Crimson Globe Radish.
1 pkt. Giant Gibraltar Onion.
1 pkt. White Globe Turnip.
1 pkt. Vegetable Marrow.
1 pkt. Fordhook Fancy Tomato.
1 pkt. New Stone Tomato.
1 pkt. Earliana Tomato.
1 pkt. Rockyford Muskmelon.
1 pkt. Wakefield Cabbage.
1 pkt. True Hubbard Squash.
Catalog price, \$1.00.

COLLECTION NO. 3. A Complete Garden for \$1.00.

Postpaid.

A package of all seeds in Coll. No. 2 and
1 pint Amer. Wonder Peas.
1 pint Champion Peas.
1 pint Bantam Sweet Corn.
1 pint Evergreen Sweet Corn.
1 pint Golden Wax Beans.
Catalog price, \$2.00.

PEACH COLLECTION. For \$1.50; by express only.

3 Elberta.
3 Late Crawford.
3 Carmen.
1 Champion.
1 Smock.
1 Triumph.

PLUM COLLECTION. For \$2.00; by express only.

4 Lombard.
4 Bradshaw.
2 Imp. Gage.
1 Abundance.
1 Burbank.
2 Reine Claude.
1 Ger. Prune.
2 Peach and 1 Rose Bush free.

FORESTRY COLLECTION. For \$3.00; by express only.

Every bee-keeper should aid the forest-planting movement.

100 Basswood.
100 Catalpa.
100 Locust.

½ this collection for \$1.50.

CATALOG. Write a postal for it. We still have a few packages of tomato seed left, as advertised in last GLEANINGS.

THE WOOSTER NURSERY CO., WOOSTER, OHIO
(Successors to E. C. GREEN & SON, Medina, Ohio)

Established 1884

ALWAYS ON TOP

WITH A
FULL LINE OF

Bee-keepers' Supplies

We can please you with quick shipments and satisfactory service. Our goods are the ROOT CO.'S make, hence there is nothing to fear as to quality. A postal-card will bring you our 50-page catalog. Send us your inquiries at once. We equalize freight rates with St. Louis and Kansas City points on all shipments of 100 lbs. and over. We sell at retail and wholesale, according to quantity.

**John Nebel & Son
Supply Co.** High Hill, Montg. Co., Mo.

HEADQUARTERS FOR

ROOT'S BEE-KEEPERS' SUPPLIES

at Root's prices.—No drayage charges.

We offer for a short time,

Omega CREAM SEPARATORS

for spot cash, freight prepaid to your station, as follows:

No. 1—capacity 325 lbs., \$50. No. 3—capacity 500 lbs., \$60.
No. 2—capacity 400 lbs., \$55. No. 4—capacity 700 lbs., \$70.

RAWLINGS IMPLEMENT CO.,
9-11 W. Pratt St. Baltimore, Md.

PATENTS

25 YEARS' PRACTICE.
CHARLES J. WILLIAMSON,
Second Nat'l Bank Bldg., WASHINGTON, D. C.

Patent Practice in Patent
Office and Courts.

Patent Counsel of
The A. I. Root Co.

Mr. Bee-Man:

You can save time, worry, and money by ordering your supplies for next season now.

I have a full line of Hives, Supers, Sections, Foundation—in fact, everything you need in the apary. If you do not have a catalog, send for one to-day.

H. H. JEPSON Boston, Mass.
182 Friend St. Phone Haymarket 1489-1

AS THE ADVERTISING DEPARTMENT SEES IT

A WORD TO OUR READERS.

There is scarcely a reader of magazines nowadays who does not read the advertising columns of his papers with almost as much interest as he does the editorial pages.

From numerous letters received from our subscribers we are gratified to learn their appreciation of the fact that there has been a gradual improvement in our advertising columns, and we doubt if there are many readers who will not be greatly benefited by a perusal of the advertising pages.

In response to constant inquiries made of us, especially from readers in distant lands remote from large distributing centers, we have endeavored to secure as widely diversified a class of advertising as possible, with just enough of one class to permit of a selection by our readers. We do not solicit any advertising which we do not think will be interesting to our readers, and we insert no advertisement unless we feel sure that the advertiser will deal fairly with our subscribers and give them value received in every case.

We intend to make this department of so much interest to our readers that it can not help being of value to advertisers. If you will state, when sending inquiries or orders, that you saw the advertisement in *GLEANINGS*, it will help us to maintain our high standard, and in return we shall be able to keep on improving our magazine.

The past few years have brought many changes in the plans of advertisers. Formerly mere announcements were deemed sufficient; but now, in addition to the information often given in their advertisements themselves, pamphlets, books, etc., of real value are distributed gratuitously by the advertiser. By a perusal of the advertising pages of this issue our readers will find a wealth of information offered to those who are investigating various advertised lines.

Who, for instance, could have the opportunity of collecting and presenting carefully prepared information relative to new lands in the South and elsewhere, and the advantages of the respective localities as regards production, marketing, etc., better than the railroad companies do? It is not to be wondered at, therefore, that the agricultural and industrial departments of the railroads can give more valuable general information, as a rule, than can be obtained by correspondence with local real-estate dealers; and any reader who is considering a change of location is urged to write to the railroad companies whose lines traverse the State in which he is interested, for information and printed matter, which they are always glad to furnish.



It has been gratifying to us to notice that the incubator-manufacturers have been sending us their advertising orders regularly year after year in an increasing number, and to observe that very seldom does any one of them discontinue the use of *GLEANINGS* in season. Our thanks are probably due our readers rather than the advertisers themselves; for if they were not well patronized they would naturally try other papers. The matter is brought to our mind by a letter just received from our bee-keeping friend and *GLEANINGS* correspondent, Thos. F. Rigg, Iowa Falls, Iowa, who is better known in the poultry world than as a bee-keeper. Under date of January 27, in renewing his subscription he writes: "You know I am in a position where I meet practically all the leading standard-bred poultry advertisers of the country. Those who are using your advertising columns tell me that they are receiving most satisfactory results. In many cases reports are to the effect that *GLEANINGS* leads by considerable the best of the regular poultry journals."

AS THE ADVERTISING DEPARTMENT SEES IT

As we have previously said, much valuable information may be obtained from a perusal of the catalogs sent out by the incubator-manufacturers. Some of them, indeed, are more pretentious than many of the books published on poultry culture, and thousands of dollars are spent annually by the manufacturers in experiments and the collecting of the latest information to appear in their catalogs.

It is undoubtedly true that nearly every bee-keeper has some poultry, but not every one realizes how much he might add to his income by investing in some up-to-date appliances. A good incubator and brooder are almost essential for successful poultry-raising in these advanced times, and money put into them is an investment that will pay a large dividend within a short time.



Time was when the low-wheeled wide-tired wagon for the farm was looked upon with disfavor, but it is now no longer a question of whether a farmer shall have one of these handy wagons, but simply what kind to get and the best way to get it. Perhaps the simplest and cheapest way is to purchase a set of low broad-tired wheels to fit the farm wagon. Any manufacturer of the wheels will send a diagram and full explanations for measuring your skeins.

A more satisfactory way is to buy the low wagon complete. They may be purchased for almost any price, but the careful purchaser will do well to choose one that is durable and practical and of a type that has been used and tested.

It is surprising, the uses to which these handy wagons may be put. Photographers build portable galleries on them, the lonely sheep-herders in the West build houses upon them, and bee-rangers use them for the same purpose. For use in moving bees they are all that can be desired. They will haul from 20 to 50 per cent more of a load, and one man can easily do the work of two in loading and unloading. In fact, as practically all the farm produce is hauled more or less, the saving in a year's time is a larger item.



Not every grower realizes the benefit to be gained by a careful selection of seeds, plants, and trees. For instance, strawberry-beds are often seen producing very inferior stock, while on the same ground, with the same amount, of labor, big crops of superior fruit could be raised by setting out a few new plants or choosing superior stock in the first place.

It doesn't always pay, either, to try to raise your own seed corn. There are so many reliable sources now where choice seed can be purchased that you are sure will be just what you want, that you can not afford to experiment. The same is true of oats, potatoes, and a good many other farm crops. Try sending for some new seeds from some reliable house this season, and see how much more satisfactory your harvest will be. Send for a good catalog anyhow; for even if you don't purchase any of the seeds listed, you will get a host of valuable suggestions from the catalog.



If your neighbor is contemplating the purchase of something new for his place this spring, just loan him your copy of GLEANINGS and suggest that he look over the advertising pages. You need not be afraid to tell him that anything advertised in GLEANINGS is O. K. If he doesn't hand your copy back, let us know and we will with pleasure send you another.

"If goods are wanted quick, send to Pouder."
Established 1889

UP A TREE

By the Bee Crank

The man who has some goods to sell,
 And whispers his secret down a well,
 Is not as apt to collar the dollars
 As he who climbs a tree and hollers.

I hope to be modest about it; but while I am constantly talking and shouting about the excellence of Root's goods and Pouder service I do so because I know I have some things to sell that you and all beemen of this great country need and want. The bee-supply business is made up of a thousand little details; and carelessness or inattention to any of them leads to trouble and annoyance. I am particular to a point of crankiness in filling all orders just right, and I believe my patrons appreciate this fact.

Now is the time to make up your orders for spring delivery. Before



you know it you will be in the midst of the spring rush. I have a full line of Root's newest standard goods. I should like to show you our new Dovetailed hives with bottoms made of heavy lumber, and the new Excelsior cover with waterproof strips at sides. The goods are here, and my illustrated catalog is free.

I can use more beeswax at 29 cents cash or 31 cents in trade.

Walter S. Pouder,
 Indianapolis, Ind.

CEDAR RAPIDS, IOWA.

Dear Sir:—I see in GLEANINGS that you have erected a building for your bee-supply business. I wish to congratulate you, for I know it is as pretty and tasty as it can be, for you are the one who can make it so. It must, indeed, be gratifying to be on the "top notch," and I wish you all the success this world can bring you. I read GLEANINGS regularly at the Public Library, and enjoy it the same as ever. I shall not lose interest in the bee business.

Sincerely, MRS. LUCILE WOLFRED,
 846 Third Ave.

Walter S. Pouder,

859 Massachusetts Avenue, Indianapolis, Indiana

GLEANINGS IN BEE CULTURE

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FEBRUARY 15, 1909

NO. 4

EDITORIAL

By E. R. Root.

PARTICULAR attention is drawn to the article by G. M. Doolittle, on p. 99 of this issue, discussing the proposition whether the drouth of last fall has so far killed out the clovers that there will be no clover honey east of the Mississippi for 1909.

DO THE OUTDOOR-WINTERED BEES THAT FLY OUT
ON WARM DAYS, AND LODGE ON THE GROUND
IN A CHILLED CONDITION, FAIL TO
RETURN?

A YEAR or more ago there was considerable discussion over the problem of preventing outdoor-wintered bees from flying out on a day when there was a bright sun, and the atmosphere just warm enough to suggest the possibility of a good cleansing flight. On such days it is often too cold for bees to be out long, and they often stay out longer than is good for them. They will alight on various objects in the yard and on the ground, and stay there, unable to take wing again. If they lodge in the snow they immediately chill. Most of our readers who winter outdoors, and who peruse these pages, will remember how these little patches of bees will be scattered all over the yard to an extent that looks frightful; because if there are other days accompanied by the same results, it would mean the practical decimation of every colony in the yard before spring. Nor is this winter dwindling a mere fear. At times it is something real. At other times these thousands and thousands of chilled bees out on the ground, apparently lifeless, and chilled beyond recovery, will actually go back into the hives should there be a warm fly day following the one in which they came out.

We had a practical demonstration of this a few days ago. The air was very warm, the sun shining brightly, and the temperature about 70. The bees were having a gala time, and the spotting on the ground and on the hives indicated that they were having a very satisfactory cleansing flight. But a cool wind started up about two o'clock; the sun began to be hazy, and the temperature dropped. About four o'clock we went out into the yard, and saw thousands of bees scattered over the ground between the hives. What was more distressing was the fact that these were *young* bees, not the old superannuated kind that their respective colonies might well spare. These beautiful bright bees would aggregate enough, if gathered together, to make several good colonies. If these losses, we argued, could be confined to a dozen or so hives, even if it meant a total loss in each case, it would be se-

rious enough; but to take half a pint or a pint from each colony of the youngest and best blood, if continued in the same ratio on other days, would mean disaster to the whole yard before spring. But, very fortunately, this warm day, as is generally the case in our locality, was followed by another one. The bees that had already had a cleansing flight did not come out; but the apparently lifeless and chilled ones on the ground warmed up, and every one of them, so our Mr. Bain reports, went back into the hives. This was followed by another warm day, but very few bees came out.

The day on which so many bees came out and lodged on the ground was preceded by about a week of severe cold, part of the time the mercury going down below zero. After, say, ten days of such weather we are likely to have a warm fly day; and it is then that the bees come out in countless thousands for a cleansing flight.

CAN BEES BE CHILLED STIFF FOR SEVERAL DAYS
WITHOUT KILLING THEM?

But an interesting question comes up right here regarding those bees that were chilled, and which were apparently lifeless over night, and yet which on the following day "came to life (?) again. As some of our older readers will remember, we conducted some experiments some years ago under the direction of Dr. E. F. Phillips, now of the Bureau of Entomology, Washington, D. C. We put a cage of bees on a cake of ice in a refrigerator. In some cases the bees were put between two cakes. This was done during the summer. In every case the bees were chilled in about four or five minutes, and would be apparently lifeless. Wonderful to relate, these bees would remain in this condition for a week, and when brought into a warm room they would revive and be as lively as before. In a few cases we subjected queens to this chilling process, hoping thereby to make drone-layers of them, for that was precisely what Dr. Phillips desired for some experiments he had in mind; but after this week of freezing they were introduced, and began laying the same as before, apparently but little the worse for their experience, although in all probability such queens would be shorter-lived, and, before the season was up, be superseded by the bees. On this point, however, we have no data.

These experiments show that nature has provided that bees may be chilled; for it is well known that a wall of bees surrounding a cluster of bees in outdoor-wintered hives will be practically lifeless, owing to the cold. If a spell of warm weather comes on, these bees will "come to life," (?) join their comrades, and then when another cold spell comes on—well, we do not know whether they form the aforesaid wall or

not—possibly and probably not. There may be a sort of "understanding" by which the others will take up the duty of the outdoor wall. In the same way bees chilled outdoors can be warmed by sunshine and return to their hives.

STORM-DOORS OVER THE ENTRANCES.

THE various contrivances that have been devised, and which have been illustrated in these pages, do, unquestionably, restrain to some extent the flight of the bees; but the trouble is, they work both ways. If they prevent the bees to a certain extent from coming out they also impede and confuse the returning of the bees into the hive. Our Mr. Bain, who watched these very carefully last spring, came to the conclusion that they really did more harm than good. We have about come to the same conclusion. We observed that hundreds of bees in their return flight would come to their respective hives, and, being slightly chilled, fail to work through these devious passageways designed to obstruct the light and air currents, remain outside and chill. For this reason, therefore, during the past winter we have left all of these devices off, leaving the entrance $\frac{3}{8}$ by 8 wide.

It is also becoming increasingly apparent that each of the entrances should have a running-board reaching clear down to the ground. Many bees will be too much chilled to strike the entrance-board if it be elevated above the ground, as the bees falling short will fall outside. As previously pointed out, if it warms up they will return on the following day or the one after that; but if that warm day fails to come they chill to death, never to return. We should be pleased to get hold of reports from others who have used these storm-doors, or what we may now properly call entrance-obstructors.

PROGNOSTICATING A CROP OF HONEY FROM WHITE CLOVER; CLOVERS NOT A'LL KILLED.

ON pages 1365 and 1425 of GLEANINGS for last year we quoted a statement of one of our farmer friends, Mr. Adam Leister, of Medina, one of the most up-to-date and progressive farmers that we have in this State, to the effect that the drouth of last summer and fall had not killed out the clovers, but, on the contrary, he was finding in fields adjoining his farm a great abundance of them. After reading Mr. Weaver's article on page 86 of our last issue he called us up over the phone, stating that he would like to have us come down and see the actual conditions for ourself. He explained that he had been all over the farm recently, and was convinced more than ever that the drouth had done no harm. Nay, more, he found the clovers—white, red, and alsike—were not only uninjured by the drouth, but were very much in evidence everywhere over the fields. We accordingly boarded the next car, taking along the junior A. I. Root, just four years old that day, Feb. 5. As we are using the editorial *we*, we simply remark that A. I. R. second was a very important part of that day's clover hunt. He thinks so anyhow.

Mr. Leister met us at the car-stop, and with him we went over the farm. It is unnecessary to go over all the details; but suffice it to say he gave us unlimited proof that, in his locality at least, the white-clover plants on the hilltops, where the drouth was the most severe, were not

only very numerous but very vigorous. By uncovering some of the dead grasses or leaves we could find great masses of white-clover branches intertwined among themselves, and these branches were of such size and general appearance that there could be no mistaking the fact that they were old stalks. True, the drouth had killed out many of the *grasses*; but that was what gave white clover a chance, and it certainly availed itself of the free soil.

But a casual observer might fail to see these intertwining stalks unless he should reach with the fingers down into the dead grasses and pull up the loose soil; and there, sure enough, the twining and creeping white clover with its tiny leaves could be found. We next went over the fields of alsike and red clover, and were gratified to see that they more than held their own.

Mr. Leister gave it as his opinion based on experience that the drouth of last fall, unusually severe though it was, and the mild winter thus far, was decidedly favorable to the growth of clover. "And," said he, "there has been no winter-killing, and I guarantee there will be none. The rains and the snows that we have had have gone down into the soil, which is moist but not wet. To be very much of winter-killing the ground must be soaked with water. This winter, as you will notice, we are able to walk all over the soft ground without any danger of pulling off our rubbers. While the soil is properly moist, it is not soggy as it is some winters. It is the winter-killing, not fall drouths, that kill clover."

Then he went on to explain how it was impossible to have winter-killing under the conditions afforded by the present winter. Even if there should be heavy rains from now on, the soil would take it all, and not become soaked to the extent that a frost would heave the clovers out of the ground. "No, sir," he continued, "I never saw better prospects for a good crop of clover honey next season than we find right here. If we do not get a drouth in the spring or early summer (and that is altogether unlikely, because one drouth is not likely to follow another) we shall have an immense crop of honey from clover."

Since writing the foregoing we have had a visit from Chalon Fowls, of Oberlin, who lives about twenty miles northwest of the Leister farm. In talking about the clovers he said he was fearful lest the white clovers in his locality were killed out. The land in and about Oberlin is quite level, and the soil peculiar. The drouth had been very severe—so much so that the earth left great cracks. One place a crack was wide enough so that a brick could be let down flatwise. This crack extended down into the soil for two feet.

These cracks show that the drouth must have been more severe than Medina, or else, what is more probably true, the soil is such that it is more easily affected by drouth. We have found no such conditions in land that is rolling in other parts of the State.

Most places east of the Mississippi we should expect to be more like the Leister farm and the locality described by Mr. Dootittle on page 99 of this issue. Therefore we do not share the pessimism of Mr. Weaver for the territory east of the Mississippi.

WHY BEES BECOME UNEASY IN A CELLAR; DEAD BEES ON THE CELLAR BOTTOM

AT this time of year the bees in the cellar, with a temperature above 50, during warm spells are liable to become very uneasy. If there are a hundred or so colonies in a repository there may be an inch or more of dead bees on the floor if they have not been swept out. While this might look as if all the bees in the cellar were dying, it does not necessarily indicate poor wintering, although the conditions can not be considered ideal when so many bees are on the cellar floor.

As the winter begins to wane, and spring is in sight, it is very important to have sufficient ventilation in all cellars where the temperature goes above 50, especially where it goes from one extreme to the other. Good wintering must not be expected in a cellar with poor ventilation if the temperature goes down to freezing and stays there for a week at a time. Bees outdoors can stand a temperature far below freezing without injury, but bees in a cellar can not. The difference is explainable partly on the ground of ventilation—that is to say, the quality of the air the bees have to breathe. Then the outdoor bees may have an opportunity for a cleansing flight; and this has much to do with keeping bees quiet afterward. If they become very uneasy in the cellar, and the weather should be warm enough outdoors so they can fly, we would advise taking every colony out, and giving them a flight, after which putting them back. It is wonderful how such a flight will quiet them. If, on the other hand, the temperature be kept fairly uniform at 45, or if it ranges from 40 to 50, and there be plenty of ventilation, there should be no uneasiness and no occasion for a cleansing flight.

Let the beginner fairly understand this, that very little ventilation is required if a uniform temperature in the cellar can be maintained. But when that is not possible there must be a large amount of fresh air given, at least every night, but it would be better to supply it continuously throughout the 24 hours. In giving air, care must be taken not to let in the light.

Again, he should understand that it may be an easy trick to winter a dozen colonies in a given cellar; but it is quite another trick to bring through 100 or more in the same place. The problem is one of ventilation and regulation of temperature. The more bees the greater the body heat and the higher the cellar temperature; the more bees, too, the fouler the air. With few bees comparatively, both propositions are simple.

cold spell. Let us open up a hive when the temperature is about 10 above zero. What do we find? We look down between the frames, and every thing seems to be as still as death, with no bees in sight. A more careful search, however, reveals that what appeared to be a fair-sized colony in the fall is now compressed down to a small bunch of bees, not much larger than a good-sized snowball, located some two or three inches from the top of the frames and toward the front of the hive. We find them apparently frozen stiff, save a few bees right in the center of the cluster. The crust of bees on the outside are apparently dead. If the cold spell lasts three weeks or more this cluster will be unable to unfold; and the individual bees will not freeze to death, but actually starve. During the following spring we go back to that hive and find no response. The stronger colonies that had larger clusters during the winter will be showing life at the entrances; but those with smaller or weaker clusters show no life. We open up the ball of one of them and find all the bees dead, beyond doubt, for the atmosphere is warm enough for them to unfold if they were alive. Within two inches of the cluster we find all the stores gone. It was too small to hold up the bodily heat; and not being able to break the cluster it was unable to get at the stores, and starvation was the result. If, on the other hand, the cold spell had not lasted more than ten days, and there came on warm weather, the cluster would have unfolded, moved over where there were fresh stores; and when the cold spell came on they would have formed a new cluster. It might be ever so cold; it might go 10 below zero; but if the cold wave did not last more than a week, and it warmed up so the cluster could unfold, those bees would be as lively as ever.

It follows, then, that, for successful outdoor wintering, the average winter of the locality must be such that there will not be a protracted cold spell of two or three weeks or more. But, even then, very strong colonies will be able to stand such cold while the weak ones will not. No one should attempt to winter outdoors unless the winters have warm days every two or three weeks—or rather, we should say, the temperature should rise so that the cluster can unfold. It is not necessary to have fly days; but it is important to have a sufficient warming-up so the clusters can move, so to speak, to pastures new.

WHEN TO WINTER OUTDOORS, AND WHEN IN CELLARS.

If the climate is very cold, and that cold continues, the colonies must either be very strong or they should be wintered indoors. As a general practice we would say, always winter indoors when the temperature runs for weeks at a time not warmer than 10 above zero. On the other hand, in a climate where the temperature warms up to 70, outside, every two or three weeks, so the bees can fly, with no colder weather than zero, and generally not very much below freezing, the outdoor plan will be much more sure of giving the better results. While the bees on their summer stands will consume more stores they will have more brood and more young blood in the spring and early summer than stocks taken from the cellar.

WINTERING BEES OUTDOORS; CONDITIONS FAVORABLE AND UNFAVORABLE; WHAT KILLS OUTDOOR-WINTERED COLONIES.

THE winter thus far in our locality, at least, has been very favorable for outdoor wintering, especially those colonies provided with plenty of stores in double-walled hives or single hives with suitable winter cases over them. The kind of winter that is hard on bees is one that has protracted cold spells, the mercury playing around the zero-mark for two or three weeks at a time without a letup.

Bees seldom freeze to death outdoors, in our judgment; but they do starve after a protracted

STRAY STRAWS

DR. C. C. MILLER

MR. EDITOR, just right you are to urge pure air and lots of it for bee-cellars, p. 72.

FIE! FIE! Bro. Morrison, with your honey cider, p. 22. We say apple cider, pear cider, etc., because cider is the juice of a fruit. But honey isn't a fruit.

SECTIONS of honey, some unsealed, down cellar beside the furnace, are keeping beautifully. Instead of candying or getting watery, the honey is growing thick and very stringy.

SECTION HONEY, treated as A. I. Root tells about treating extracted, p. 94, care being taken not to melt the comb, ought to be proof against candying, and keep over until next year.

BOTTOM STARTERS should not be so deep as 15 millimeters—only 12, says *L'Apiculture Nouvelle*, 385. Friend Bondonneau, I've used successfully many thousands of bottom starters 15.8 mm; but I used thin super foundation. With extra thin they should not be so deep.

THIS WINTER would do well for outdoor wintering here—not so much because mild, but because there have been at least three chances for winter flights—Dec. 29, Jan. 4, and Jan. 22. The last time there was a warm spell of several days, a heavy thunderstorm, and a temperature of 60 degrees.

I'VE ALWAYS thought that in clover regions a good rule for putting on supers was when the first clover-bloom appeared. It's certainly right for this locality; but Grant Stanley, p. 79, makes me think it may be wrong elsewhere. What crop comes in before white clover? Dandelion and fruit-bloom here, but they don't need supers.

KINDLING for the kitchen fire that we like much is made thus: Fill a 10-lb. lard-pail or other vessel with ashes, and stir in kerosene till fairly moist. [You will have to be careful or you may have spontaneous combustion; perhaps not of the ashes but of the oil. If there is any unburned coal in the ashes there would be more danger. You'd better consult your insurance agent or put the pail out doors when not in use.—ED.]

AUSTRIAN bee-keepers have settled on a standard frame, to be called "Oesterreichische Breitwabe," 16.94 by 10.14 inches (that's about 10 square inches larger than the Langstroth); extracting-frame, 4.96 in. deep. [It is a great pity that they did not adopt the exact Langstroth dimensions, seeing that they were so near to them. Nothing but stupid clannishness would permit them to be so near and yet so far. As many supplies necessarily have to come from America, if our Austrian bee-keepers had adopted our standard it would save them many dollars.—ED.]

HARRY LATHROP, endorsed by *Bee-keepers' Review*, p. 15, says it is the two-year old white-clover plants that furnish the crop, those younger or older being of little value. If that means that the only plants of value are those two years from the seed, then I question. Doesn't white clover spread and take root just like strawberry-plants?

Strawberry-plants go on year after year with never a seed sown; why not white clover? [Yes, indeed, white clover spreads and takes root just like strawberry-plants. Right here some of our correspondents are mixed up. One kind of clover will propagate from seed only, while another from seed and branch both. In the same way a branch of a grapevine buried in the ground will take root. The white clover does this right along.—ED.]

THAT COLONY in window of warm room, p. 72, may be all right when "every two or three weeks there has been at least one day when the bees could get an airing." That proves nothing as to a five-months' confinement. [That is true; but probably three-fourths of the localities north of the Ohio River have winters during which the bees can have flights every two or three weeks. If warm-room wintering is feasible at all, if it increases the brood, if it makes a stronger colony in the spring, it will mean that three-fourths of those bee-keepers located in the cold latitudes will be able to avail themselves of these advantages.—ED.]

FIFTEEN years ago I also attended that Chicago convention you mention, p. 74, Mr. Editor. There's an idea rattling around in my memory-box that 2 cts. was talked of to be deducted for freight, etc. At any rate, I think I ought to be a little better authority than that fellow you quote who was 15 years younger than I am. [We hope to locate the exact figures in the report. The writer was the reporter for that convention and remembers distinctly, or at least he *thinks* he does, taking these figures. The reason he remembers was that the cost of selling equaled one third of the wholesale price. He was surprised that the ratio should be so large.—ED.]

VIRGIL WEAVER has an interesting article, p. 86; but some things will hardly bear close inspection. The normal thing seems to be to have "an average of about a foot to a plant," that is, a square foot to each clover-seed. But "if the rain stops, say, the first of July, this plant covers but one-third of the space, and the honey from these young plants, therefore, is cut two-thirds." But that's assuming that there will be only one seed for each square foot. If there be three seeds to each foot, that would fill the ground, even with each seed filling only "one-third of the space," and would not that give as much honey as if one seed filled the ground? If any seed start at all, is there any likelihood there will be less than three to the foot?

"Another instance of winter-killing is when it rains for several years in succession, and the ground becomes so thickly set in clover that it starves itself out, just as corn set too thickly literally starves, so that the crop is destroyed." Now, if thick setting kills out the plants, it doesn't need several years, for dozens or hundreds of seeds to the foot are commonly present, and the crop ought to be thus destroyed nearly every year. We are also told that "the old clover starves the young plants to death." But a little earlier we are told that "the growth made by a white-clover plant this year blossoms next year and then dies out." How can it die out and at the same time crowd out the vigorous young plants? But for all that, his main contention may be correct.

CONVERSATIONS WITH DOOLITTLE

OUR 1909 CLOVER-HONEY CROP.

"There will be a bitter fall from the beekeepers in the white-clover belt next spring, as 90 per cent of the clover is already dead that would produce honey in 1909."

That is the last sentence in Virgil Weaver's article, page 87, February 1. As most of us here are held by our environments right in the clover-belt, it may be a comfort to us to diagnose this clover matter for our own locality. I do not say that what is here written is correct for Valley View, Ky., as I was never there; but I do claim that it is applicable to Central New York.

Mr. Weaversays, "In wet soils that heave things out of the ground by freezing and thawing, white clover will manage to have enough roots sticking in the ground to maintain life;" but I have seen hundreds of acres where the roots of white and other clovers were drawn completely out of the soil, and many other hundreds of acres where the plants died when half or two-thirds drawn, from the effects of a dry spring following a winter with but little snow and much freezing and thawing. Some seem to think that, because the white-clover stalks creep along the ground and root at many or all of the leaf-joints, it does not heave out like the other clovers with their *one* tap-root. But as these joint-roots are only tap-roots they are drawn from the soil in the way I tried to explain in the Feb. 1st issue; but as they are smaller and shorter it takes a less number of changes from thawing to freezing to injure or kill them than than it does the longer and stronger rooted red and alsike varieties.

All of Mr. Weaver's article leads me to believe that he has a sandy or sandy loam soil, one in which timothy and other grasses, aside from clover, do not thrive; for, outside of gardens and a few waste places, I never saw a white-clover plant that covered a foot in diameter, to say nothing of two feet; and yet with the ground free from the other grasses, as in gardens, it spreads itself just as he says. But the bloom is not in accord with his views as I understand him. The little seedling which comes up the last half of April or during May has to contend with the other grasses which come up with it, if it is in a newly seeded piece, or with grasses already established, as in a pasture, and at best it is August before there are any signs of bloom upon it, and this is after the honey season is past for clover. This shows that such a thing as honey from white-clover seedlings, the first year, is a fallacy. Now comes the spring of the second year, when the clover-plant is one year old. During the fall before, it will have formed a head, or crown, and perhaps some few stem creepers, though the most of these last are in embryo. As the growth commences, these stem creepers push out; and if the season is wet they root at the leaf-joints, as Dr. Miller and Mr. Weaver tell us. But if the spring is dry, these creepers simply run out for a few joints along the ground, the same as the alsike and red clovers grow out their stems in an upright position. While these creepers are growing, the embryo blossoms are beginning to grow in the crown;

and as the creepers advance, the embryo blossoms at each leaf-joint on the creepers to push out, and thus we have, as a rule, the first clover bloom from the crown of the plant, and that later on from the joints of the creepers.

Even the novice, must know that the blossoms come out one after another on the stalk stems of the red and alsike clovers, at the base of the lower leaves first, and so on at each leaf-joint, thus prolonging the blooming season till the end of the growth is reached, or the farmers mowing-machine puts a stop to the whole thing. Now the white-clover stem-creepers put forth blossoms in just the same way, only the stalk-stems creep along the ground instead of standing erect, and keep on blooming until the growth stops, which is earlier in a dry season, when no leaf-stem roots are made, and longer during a wet season where many roots are made. If roots are made, then we have a new plant at each root, a crown forming thereon in the fall, much the same way as a strawberry-runner forms new plants; but if dry, so no roots form, then these stem-creepers die back to the original crown as Mr. Weaver says.

A dry fall does not have so much to do with the blooming of the clover as the spring and early summer does, so long as the clovers are not killed by the fall drouth, as they were not by last fall's dry weather, which was as severe as any I ever knew. To be sure, the crowns at the top of the clover roots are not as large now as they would have been if August, September, and October had been wet; but if the clovers are not drawn out by a heaving winter, and the spring proves propitious, so as to make many stem-creepers, we may have a greater bloom than with a wet fall and a very dry spring up to July 1st. So I do not see that I have any occasion to provide a less number of supers or supplies for the coming season is my usual custom.

Mr. Weaver makes no allowance for the atmospheric conditions, nor the temperature or winds, at the time of the clover bloom. He seems to base his whole structure on what the rainfall was after July 1, 1903, and uses Dr. Miller's bumper crop of last year to substantiate his position. Have I forgotten, or did Dr. M. tell us during some of his "off" years about fields white with clover, but little if any secretion of nectar? Well, be that as it may, some of the years having the most profuse white clover bloom I have ever witnessed passed on and out without enough nectar secretion to give us a pound of clover honey. Why? Simply because the conditions of the season were not right for the secretion of nectar during the abundant clover-bloom. Again, with apparently not half a bloom, owing to its being a poor season for the stem-creepers to grow, nectar has poured in to "beat the band," and caught many with their "porridge-dish" wrong side up, because, like Mr. Weaver, they had taken their bees off to the mountains; or, more properly speaking, they thought there would be little or no crop, and for this reason had failed to provide the needed supplies till the down-pour was on them.

If the season proves to be right during the summer of 1909, I see no reason why we should not have a good crop of honey, even though the extreme drouth of last fall may cause the crowns of the white clover to be somewhat dwarfed.

SIFTINGS.

By J. E. CRANE

I am much interested in the editor's experiment of wintering bees in a warm room, page 1489, Dec. 15. I hope we may get some new facts on the philosophy of wintering.

Mr. Scholl is quite right in calling attention to the care needed in shipping honey. We may all be sure that the loss from breakage eventually comes out of the bee-keeper's pocket.

Mr. Morrison gives us a short and interesting article on sweet clover, p. 1430. I wonder if it wouldn't be a good thing for bee-keepers all over the country to get the local papers to copy it.

Mr. Waggoner's hints on selling honey, page 1486, near home, are well worth our attention. The value of a neat narrow showcase to set in a window or on a counter is worth our attention. It is much better, to my mind, than a large shipping-case.

I believe Mr. Louis H. Scholl beats the record in taking off super honey, p. 1493. This is one of the best arguments I have heard in favor of shallow super-frames; but isn't it often very inconvenient not to have the super and brood-frames of the same size?

On p. 1424, Dec. 1, the editor says it is a good time to unite when putting colonies in a cellar. Any time in the fall after the weather is cold enough so the bees cluster close together, I have found that they may be united without difficulty by simply shaking them together.

Prof. Bigelow calls attention, among other things, to the fact that bees gather but one kind of pollen on a foraging expedition, p. 1497, Dec. 15. This is true as a rule, but, I believe, not always. I have actually seen a bee fly from the flower of one species of plant to another of an entirely different species.

I do not often call attention to the Home department of A. I. Root; but it seems to me that any one who reads this in the Dec. 1st number, and his pulse is not quickened, and his aspirations for a nobler life strengthened, is greatly to be pitied. The news in the temperance column is well worth a year's subscription to GLEANINGS. These are great times in which we are living.

On p. 1423, Dec. 1, Dr. Miller says: "In actual practice I let a queen live as long as she does good work. Not often do my bees allow a queen to live after that." Good bees! Mine are not so skillful in superseding. Last spring I had a good many colonies that were among my best and strongest in bees and brood. Early in May their queens began to fail; and before new queens were laying they were so reduced that they gave me one less super of honey than other colonies whose queens retained their vitality.

Dr. Miller objects, p. 1488, Dec. 15, to drone comb in supers, and he is right. The less drone comb in a hive, above or below, the better. My experience is that it is a nuisance everywhere except a very little in the brood-nest, and for making beeswax. It is better for this last purpose than worker comb by far.

Mention is made, p. 1488, Dec. 15, of old honey being better than new, but it was kept up in the garret. A garret, or some other dry room, is the place to keep honey; and if it is left under some low roof, all the better. Under a roof is best. One of my neighbors, when prices were low, kept a large crop of honey over until the next year, and sold it at a much better price. His honey-room was under a roof where it was very hot through the summer.

On p. 1514 A. I. Root has seemed to get down to pretty near the bottom of things that a live bee-keeper is interested in. It would take a good deal of room to tell all I have suffered from cramped feet in the years gone by. But within a few years I have been able to buy shoes that give me perfect freedom, and I can not tell how much pleasure they have given me. I would not go back to the old style for any amount of money, it seems to me.

HOW TO PUT ON SUPERS.

Commencing on page 1441 is an article by Dr. Miller on putting comb-honey supers on hives, and it would be well for all bee-keepers to study it carefully. A great amount of honey is lost in not giving enough room early in the season. I have found of late years that a strong colony, when honey is abundant, will fill two supers almost as soon as one. The old theory, that the first super should be two-thirds full and partly sealed before a second one is given, is exploded. Doolittle's advice to get as many sections as possible started early in the season is sound.

DOUBLE-TIER SHIPPING-CASES.

Wesley Foster makes some rather novel statements, page 1312, Nov. 1, in regard to the value of double-tier shipping-cases. I supposed that subject was settled long ago in favor of single-tier cases; but he informs us that several carloads of honey did not sell readily because in single-tier cases. How little we downeasters know about the great big world out west! He says the only objection to double-tier cases is that broken honey will leak on the section below, and proceeds to brush away this objection by saying that "broken or leaky honey should not be cased for shipment, anyway." I wonder if friend Foster thinks those who oppose double-tier cases are in the habit of putting up leaky and broken honey. I wonder if he has ever heard of any comb honey broken on its way to market. I heard of several tons the other day. I will admit, however, that such is not usually the case. I believe that, as a rule, it reaches the wholesale dealer in fairly good shape; but when he ships again to the retail dealer, unless special care is taken it is quite likely to get broken, and then it is a mess. I had no idea, until within a few years, how much is broken before it reaches the consumer.

GLEANINGS FROM OUR EXCHANGES

By W. K. MORRISON

The Cuban bee-keepers have seen rather poor times for the past two or three years. Now it looks as if their condition would be somewhat worse for some time ahead.

The Australians can not secure a fair bid for their eucalyptus honey in England. If they would make their own biscuits, using their own honey, perhaps they would be glad to keep it. There is nothing like independence.

The Agricultural Experiment Station of Arizona has just issued an excellent free bulletin entitled "Citrus Culture in the Arid Southwest," which may interest a number of GLEANINGS readers. It does not mention the value of citrus bloom to bee-keepers, but that is understood.

OLD HONEY.

Stand up, doctor, and take your medicine. Honey has been taken from Pompeii and Herculaneum on several occasions, and, so far as I am aware, it was eatable. Honey in a fair state of preservation was taken from the tomb of one of the Pharaohs (Amenhotep II.). Is that old?

At Norwich, England, the town council, according to the *British Bee Journal*, has placed an order for 14,500 shade-trees. These will probably be of two species—lindens and oriental planes—both of exceptional value to bee-keepers, and very handsome shade-trees. The first is the European linden, or basswood; but the latter is not so well known here, though it may be frequently seen in the parks and avenues of our eastern cities.

SPURIOUS SWEETS AND POISONOUS PRESERVATIVES.

A correspondent who resides in Texas writes me that pickle-factories use saccharine in their business of putting up pickles. They do, unfortunately. I think they are not quite so bad as the soda-water manufacturers who use both benzoate of soda and saccharine. These are insidious poisons, and ought to be barred from all human food and drinks. It is the opinion of eminent authorities on poisons that saccharine ought not to be sold at all except for laboratory use. In Germany only one factory now makes it, and that is under strict supervision by the imperial government. I note that Indiana has succeeded in barring out benzoate of soda in food. That knocks out a lot of syrups, jellies, etc., and makes a wider market for honey. Bee keepers owe it to themselves to give the facts the widest publicity.

BEE-KEEPING IN NORTH AFRICA.

Fischer, the German ethnologist, has this to say of the Berbers of Morocco, a statement which also applies to the whole of North Africa: "Bee culture is carried on by them with especial zeal,

and wax is, therefore, one of the exports of Southern Morocco." Some time ago a French bee-journal rather sarcastically criticised me for attributing the fine physique of these North Africa folk to the honey and other excellent natural foods they use; but Professor Fischer's article (Smithsonian Report, 1907) rather bears me out. At first he notes they are great producers of apricots, figs, dates, and similar crops. Further he states: "The Berbers physically are an extraordinarily powerful and sturdy race—slender, muscular, somewhat about the average in height, but with no tendency toward fat, which is considered becoming only among the young girls of a few tribes. Their endurance of bodily exertion and privation is wonderful; but above all they excel in walking and running." It looks as if my French critic would have to swallow this German pill, as it is backed up by American observation.

GOVERNMENT AID TO BEE-KEEPERS.

Dr. Miller hints that it would do no harm if the federal government would devote a little more of its money toward the encouragement of the bee-keeping industry. I will add a little more to that. We are *wasting* hundreds of millions on preparation for wars that will never come. Certainly no European power has the remotest idea of declaring war on us, and we could not make war on any one of them. The war business has a great resemblance to the liquor business, and we still have to combat it just as the temperance people have done with the alcohol trade. It is a vast evil. Just think, doctor. We waste enough money in a year to build a double-track electric railway from New York to San Francisco. Not only that, we set a bad example, for Brazil and Argentina are now arranging to have large navies. Let's have that appropriation of \$100,000 for bees.

MORE IRRIGATION FOR IMPERIAL VALLEY.

The prospects are very favorable for a government reclamation project in the famous Imperial Valley, in California, which will reclaim 200,000 acres of very rich land. Water will be taken from Laguna dam (which is now building), at an elevation of 145 feet. This was sufficiently high to send the water from the extreme south end of the valley northward to the Southern Pacific track at Imperial Junction. It ought to be noted that the Colorado River runs south, while the flow of the canal is northward. This new system will irrigate lands higher than the present irrigated areas, some of which are below sea-level. A vote is being taken, and it is not expected there will be any opposition to the project, for Uncle Sam will do the work in his usual satisfactory manner. Previous irrigation work in the valley has been done by private enterprise. There is a probability that vast areas will be reclaimed in and around Imperial Valley; in fact, it looks now as if Imperial Valley would become the banner producing section of the Golden State; but it will require government supervision and assistance to accomplish it, as the engineering work must be of a stupendous and enduring character, which can not be left to private initiative.

BEE-KEEPING IN THE SOUTHWEST

BY LOUIS SCHOLL

Learn to cut *down* when uncapping, instead of using that unhandy upward stroke.

The bees were never in better condition at this time of the year in the Lone Star State than they are this spring.

Better packages for our next honey crop should be considered by every bee-keeper who ships honey. We do not care to have the railroads raise the freight rates.

If one has not ordered his supplies for the coming season he should do so at once, and during his spare time get them put together so as to be ready for the honey-flow when it comes.

WAX SECRETION, AND ITS EFFECT ON THE AMOUNT OF HONEY STORED.

There are times when the bees secrete more wax than at others—during a good honey-flow, for instance, or in the case of booming colonies in the spring that have their hives full of honey from the previous year and are required to handle it, making room for the queen, etc. At such times I have found comb-building cheaper than otherwise, and have often taken advantage of that fact in making the bees draw out combs for future use.

At the very beginning of the honey-flow, or even before, every colony in our yards is supplied with a shallow super of drawn combs to catch the first honey that comes in scatteringly, and in too small quantities to cause comb-building to any great extent. If we did not do this we should lose some honey at this time. A little later a comb-honey super with full sheets of foundation is added under the one containing the drawn combs. By this time the bees are secreting wax plentifully, which is shown by the whitening of the combs in the first super, and comb-building is begun on this foundation at a rapid rate, wax secretion being on the increase as the flow advances.

For years we supplied all supers given after the first two just mentioned, with only half-sheets of foundation, because we thought that the additional foundation was not needed, since the bees were secreting wax involuntarily, and that the extra wax used in full sheets would, therefore, be a loss. Last year, however, we had an experience that seemed to upset these conclusions. We were putting on supers with full sheets of foundation all the way through, mainly because we had it; but, on account of delay in a shipment, we ran short, and only half-sheets of foundation were put in 50 supers or more. As there was a good honey-flow still on, and the bees were working well in their third supers, secreting wax at a rapid rate, we thought it would not make any difference. But it *did* make a difference; for in six days' time all the supers with full sheets of foundation were fully drawn out, and, upon careful estimation,

they averaged from 20 to 25 lbs of honey, while those with only third and half sheets averaged only about 10 to 15 lbs. This taught us a lesson; and hereafter we shall use full sheets under all conditions.

It costs about 20 cents per super for full sheets; and by putting in half-sheets, we saved 10 cents per super. In six days' time the difference between the two in honey stored was fully ten pounds in favor of the full-sheet supers. This was comb honey, and averaged 12 cents per pound, making \$1.20 per super, or a loss of \$1.10 above the 10 cents saved on foundation. The colonies that fell behind on this account remained behind the rest of the season. The test was a very conclusive one, as the two yards were among the best we had, the colonies unusually even in strength and ability, and the flow an extra good one of long duration. With a poorer flow the results might have been worse. The supers were hastily put on at random, just as taken from the wagon, without paying attention to which had full sheets or only starters.

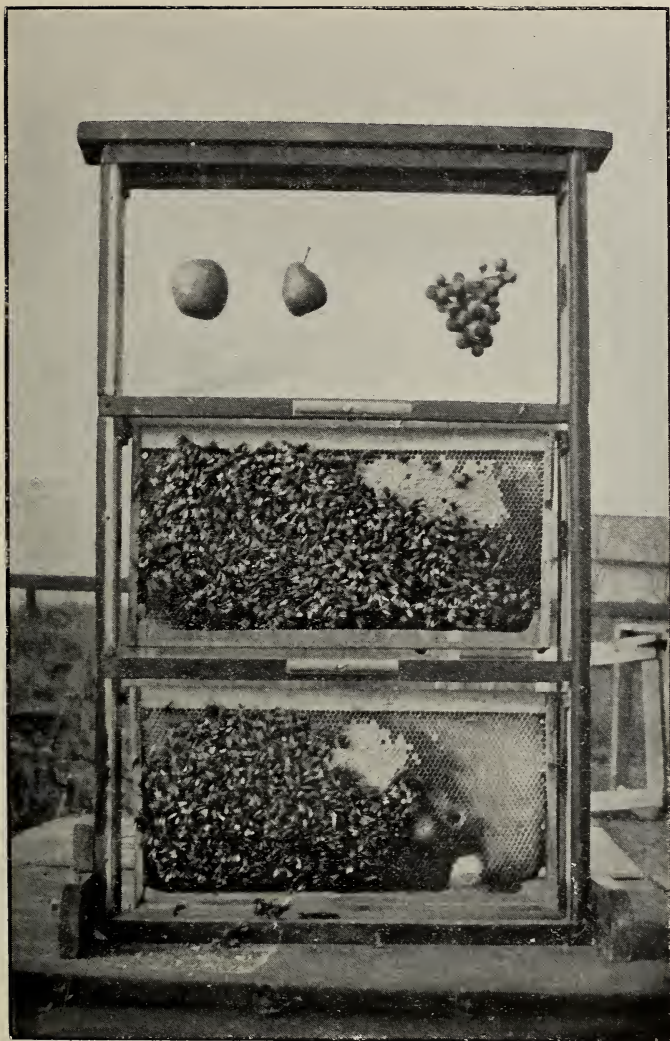
HOW WE "SHAKE ENERGY INTO BEES."

There are several ways of "shaking energy" into bees. One is by going through all colonies some time previous to the honey-flow and scraping all the frames of burr-combs and propolis, taking out all drone comb and replacing it with worker comb or foundation, and doing a dozen other things for the welfare of the queen and the colony. Do this during a spell of warm weather when the bees are booming, and watch the results from then on.

Bees can also be brought into the same condition if moved from one place to another.

In using the divisible-brood-chamber hive the same condition is obtained by "cutting" up the colony at various times to accomplish certain effects desired. To stimulate breeding, the upper and lower stories of the brood-chamber may be exchanged. This tears up the colony, and the brood nest is rearranged by the bees, which has a stimulating effect on them. Late the two shallow stories are exchanged again, and one with empty combs is slipped in between them to "knock swarming in the head." Just before the honey-flow they are torn up again, as the two lower stories (there are three now for the brood-chamber) are exchanged again. The top story, which is now partially filled with honey, so that the bees are crowding out the brood, is raised up, and a new super with foundation placed under it. This makes still another shaking; and, how those bees do work!

The first shaking occurs when the spring examination is made, and it stirs up the bees because the cluster is torn open, and burr-combs, etc., broken, when the cover and the upper and lower stories are separated or tilted back. Then the scraping of the frames, etc., as enumerated, follows in rotation. Except for the scraping of the frames, these are never handled again in any of the other shakings, preceding or following. Several of the same kind of shakings take place during the honey-flow when putting on or removing a super; and I must say our hive is the best adapted to shaking energy into bees with the least labor.



ONE OF THE EXHIBITS OF BEES AT THE GRANGE FAIR IN WILMINGTON, DELAWARE, HELD IN SEPTEMBER, 1908.

A card in the hive read, "Bees do not injure sound fruit."

BEES DO NOT INJURE SOUND FRUIT.

An Interesting Exhibit at a Fair, Consisting of Ripe Fruit in a Glass Hive Containing Bees.

BY JOEL GILFILLAN.

At the Grangers' fair, held this year in Wilmington, Del., I had charge again of the bee department. Besides the exhibit of honey (comb and extracted) and wax, I had a series of observatory hives exhibiting the various conditions and workings of the bees from the time a swarm was first hived until the harvest of honey was taken off. These were similar to the ones of the pre-

ceding year, the illustrations of which were published in the Nov. 1st issue, 1907. There was one hive of a different character, which created something of a sensation. This one is shown by the accompanying engraving. It was a three-story glass hive, the upper story containing ripe fruit, a bunch of grapes, a pear, and a peach. At the time the picture was taken it was a little cold, and the bees were clustering on the combs; but nearly all the time during the four days of the fair the bees were freely moving about among and over the fruit. There was a card on the hive, upon which was written, "Bees do not injure sound fruit." On the second day of the fair one of the grapes on the bunch burst open, and the bees set to work and soon cleaned it up, and that empty grape skin hung there among the sound grapes during the remaining days of the fair, speaking louder than any voice. Men would stop before this exhibit and ponder a long time, and then turn away with the remark, "Well, that settles the question." Sometimes a few would rush past without taking time to read the card, and say as they passed, "There, that shows how the bees get honey from fruit." One very wise fellow, who was leading a company around, and who was quick to read the cards on the hives, and who tried to be very wise, began describing this one

before he reached it, saying, "Now here we have a clear demonstration of how the bees make honey from fruit." By this time he had read the card, and he merely said, "Oh!" and concluded it was time to pass on to other departments of the fair.

Mr. Danzenbaker, inventor of the hive and smoker of that name, spent considerable time with me during the fair, and gave me very valuable assistance. Many people were anxious to see the queen, and it required some one nearly all the time, and sometimes several to point out a queen in some one of the hives. And then there were many questions to be answered, and Mr. Danzenbaker did excellent service in that

line. He also helped me with the demonstrations in the large wire cage where I had a full colony with a super full of honey. I used this year a sectional hive for the demonstrations.

I had an experience this summer which has puzzled me somewhat. My home apiary is under the grape-arbor. I have some seven varieties of choice grapes, and from the first ripe grapes of the season until frost we have a constant supply of grapes. So far the bees have never worked among these grapes. Last year, 1907, was the first bearing year, and I did not take particular notice of the fact that the bees were not working among the grapes. But this year I made it a point to watch carefully, and on not a single variety of the grapes did I ever see a bee. When the first variety was ripe I thought may be the bees were still busy in the fields with the nectar of some of the summer flowers; but when the season advanced, and still they seemed to pass right by the grapes, I concluded that this was an exceptional year, and that there must be a continuous flow of nectar. I was soon informed differently, however, for people around here were complaining that the bees were destroying their grapes, some declaring that the bees were so destructive that they had scarcely enough left for table use. Then it was that I tried to conjecture why my grapes had escaped the destructive agencies which I knew to be birds, insects, and natural decay, for there was no evidence of decay in my grapes. I could not persuade the others that the bees were only secondary offenders, and touched the grapes only when they had already been injured. Now, I have thought over this a good deal, and I have some conjectures. 1. It may have been that my grapes were well fertilized by the nearness to the bees, and, consequently, the fruit was perfect. 2. The myriads of bees in and about the grapes, coming and going, and flying about, kept the birds and insects from the grapes.

I have not fully decided which of the above suppositions is correct, although I am inclined to believe it is a combination of both.

Newark, Del.

[Your exhibit of bees and fruit is certainly a very interesting one, and one that should be imitated by bee-keepers all over the country, especially in fruit sections. It would, perhaps, be well to go one step further and put in fruit that has been punctured by needle-points along with the sound fruit. A placard should show which has been injured and which are sound, in order that the general public may have a practical object-lesson — one that will exonerate the bees, at least of the charge of being the prime movers in the mischief. Of course, it will be shown that bees do help to spoil fruit already injured. This can always be met by the statement that such fruit is of no commercial value; and when it is further shown that the bees do far more good in pollinating the blossoms, making good fruitage possible, the public ought to welcome them everywhere.]

It is possible and even probable that the proximity of your grapes to your bees resulted in more perfect fruit, and perfect fruit is never touched by bees. On the other hand, it is quite possible that your own grapes were located at a point where little birds would not visit them.

It has been found in most cases where bees are said to be eating grapes that a bird called the Cape May warbler (*Dendroica tigrina*) has visited the fruit early in the morning before any one was around, run his beak into the berries, leaving a needle-like hole. The bees later, on discovering these punctures, visit the fruit when every one is up; and as these punctures are so small as not to be noticeable, the bees are accused, naturally enough, of doing *all* the mischief. It follows, then, that where grapes are close to the house, or where people are likely to pass often, these little birds, which are very shy, do not visit them, and, of course, the bees do not go near them.

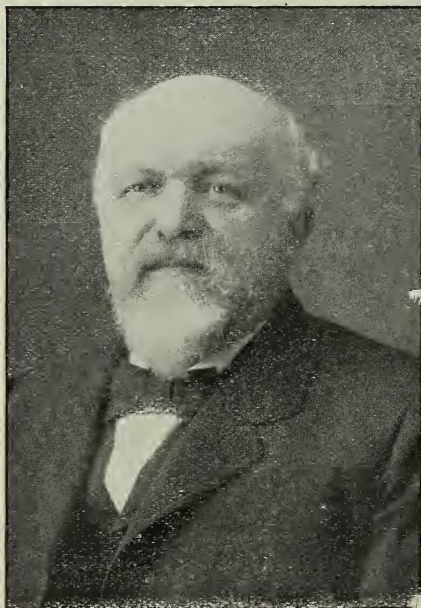
Another bird that punctures fruit is the Baltimore oriole. In some cases the common English sparrow is the culprit, and still another enemy is the wasp. In any or all cases where the skin of the fruit is broken, the bees during a dearth of honey will complete the work of destruction.—ED.]

IN MEMORIAM.

Something Concerning the Life of Mr. C. H. W. Weber.

BY HENRY REDDERT.

Mr. C. H. W. Weber, the late treasurer of the Southwestern Ohio and Hamilton Co. Bee-keepers' Association, was a very conspicuous figure among bee-keepers in this part of the State. His activities made him a person much sought for on account of his sound advice and careful observations. He was a man in whose presence



MR. C. H. W. WEBER.

every bee-keeper felt assured of a warm welcome. His place will be difficult to fill. Being a member of the National Bee-keepers' Association he was able to give, in our quarterly meetings, the new knowledge in beedom collected by the various prominent bee-keepers of the entire country, which he always did with great zest.

Mr. Weber had four apiaries—one in North Fairmount, one in South Fairmount, one in Cumminsville, and one on his roof. In each of these he had a different race, which kept him and one helper busy the entire season. In season one could very seldom find him at home; from early dawn to evening his attention was given to his bees.

Cincinnati, O., Jan. 10.

CLOVER AS A DROUTH-RESISTER.

Nitrates from Fertilizer Needed.

BY J. H. NELLIS.

No one will claim that drouth improves the vitality of clover (my experience has been with medium red, alsike, and alfalfa); but when crops are properly rotated, land in good tilth, and grass vigorous, few plants can endure as much drouth as the clovers, for the long roots find moisture when other vegetation dies.

In Central New York we fall-plowed land and seeded medium red clover and timothy with oats or barley in spring. In Northern New Jersey, timothy is sown with rye in autumn, after seeding, and during winter we top-dress liberally with stable manure. Then in *early* spring seed is sown. This plan always produces a vigorous stand.

Whenever land properly worked and enriched fails to produce a stand of clover a little soil should be procured from land that maintains the kind of clover desired, and scattered over the now productive field. The bacteria that live in the nodules found on clover roots supply nitrogen to nourish the clover-plants. Soil taken from flourishing clover-fields is inoculated with these bacteria, and they spread rapidly to the barren soil.

Although four-fifths of the air we breathe is nitrogen, yet plants, except the legumes (clovers, peas, beans, etc.), can not take this necessary and expensive element directly from the air, but must gather it through their roots from nitrates appropriated from stable manure or from commercial fertilizers.

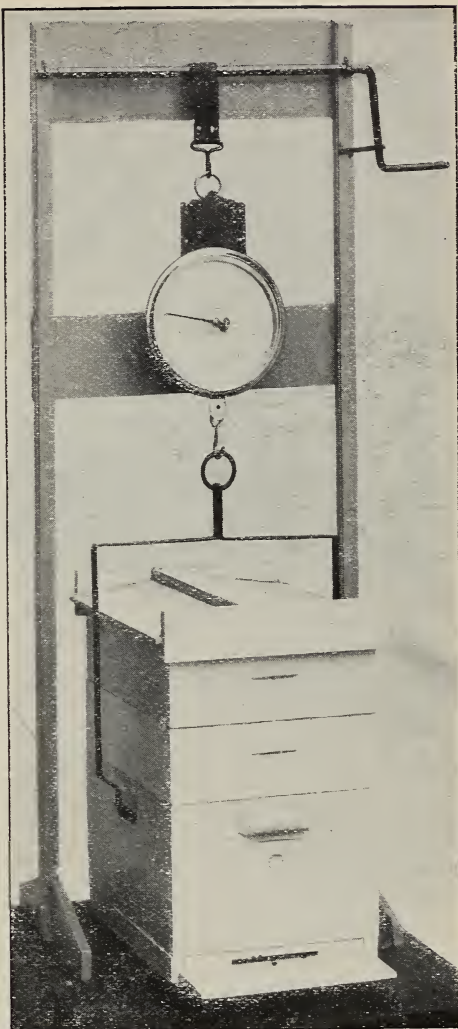
The importance of including clovers in our rotations is thus very evident, for in no other way can we procure this all-important element so cheaply. The long roots of the clovers tend also to bring to the surface mineral elements needed in plant-formation, while the mechanical condition of the soil is greatly improved.

Paterson, N. J., Jan. 6.

Preventing the spread of foul brood should be the object of every person interested in the bee-keeping industry; and each one can do some particular thing that will help. What will you do?

New Braunfels, Tex.

LOUIS SCHOLL.



AN EASY METHOD OF WEIGHING HIVES OF BEES.

A HIVE LIFTING AND WEIGHING DEVICE.

BY G. H. SHIRK.

To a novice at bee-keeping the knowledge as to whether or not a colony of bees has sufficient stores to pack for winter is an important item. He lacks that mature judgment that comes only through years of experience.

Hefting hives and even an examination leaves him still in doubt as to whether the number of pounds of honey as recommended by experienced bee-keepers is on hand. He longs for the advice of an expert in the business, or a pair of scales. The former is not to be found in the neighborhood; the latter—ah! he rigs one up.

This experience prompted the construction of the weighing device here illustrated. It is a very



A TEN-ACRE BUCKWHEAT-FIELD IN ENGLAND.

simple machine, light and easy to handle; adapts itself to eight and ten frame dovetailed hives and equally well to any hive having side hand-holes or cleats. It raises and lowers the hive with such an imperceptible motion as not to alarm the bees, and, with the stop adjustment, will hold the hive suspended while repairs or other work may be done to the stand or bottom-board. As a substitute for lifting hives to and from a platform scales with the jarring incidental thereto, to say nothing of the evil effects this method has upon the spinal column, it has proven a marked success.

Hanover, Pa.

HONEY-PLANTS IN ENGLAND.

Buckwheat and Bokhara Clover; Growing Buckwheat to take the Place of Fall Feeding.

BY JOSEPH TINSLEY.

Although it is not in every bee-keeper's power to assist in planting large areas for the supply of nectar at a time when the ordinary pasturage fails to produce any surplus, yet bee-keepers can, by using tact and ingenuity, persuade local land-owners and farmers to assist, and, at the same time, effect considerable advantages to both. Particularly was this noticeable at Mr. E. H. Taylor's bee-farm, Welwyn. While on a visit to the London exhibition I journeyed to this bee-farmer's home, and, after an inspection of the apiary and the machinery, I was shown his own particular pasturages. Every variety of nectar-producing plants was here displayed; but the treat of the day was ten acres of buckwheat situated about half a mile from Mr. Taylor's apiary. It was a wonderful sight, and I endeavored to photograph it. Being the last week in July the white clover had long ceased to bloom, and the hum on this

mammoth field of nectar was delightful. It is needless to say that by this means no autumn feeding is necessary, so that one can easily account for these rousing colonies in early spring.

According to A. I. Root this plant is considered one of the most important honey-yielders, and it is extensively grown here. In his *ABC of Bee Culture* he devotes several pages to this excellent plant which are well worth reading. The honey pro-

duced from this source is of a purple tint, and has a particularly good flavor; but notwithstanding this the cappings of comb are pearly white in appearance. One peculiar feature, however, is that the bees work on the flower only up to noon.

Mr. Taylor had also experimented in another direction with Bokhara clover. This plant also yields an exceptional quality and quantity of honey, and can be recommended to growers on a small scale. It reaches a height of 10 feet, and is most profuse in sending forth blooms, spreading its branches in all directions, each particular shoot sending forth blossoms in turn. Waste parts of the apiary can be profitably sown with it, as it flourishes in the most barren places. At the time of writing, Nov. 30, the Bokhara clover is still in bloom, although 16 degrees of frost has been registered. During the very mild weather in October the bees worked on the plant wonderfully well. When we consider that this particular kind of clover will blossom practically all the year round, the other species of clover are left in the shade, and I think all bee-keepers will do well to give it a trial.

Chebberry, Eccleshall, England.

[We have tried repeatedly to photograph a field of buckwheat; but in our locality, at least, there is almost sure to be, during daylight hours, a light breeze. This sets the heads of the plants to waving, with the result that we see a blurr in the photo as in that here reproduced. It is impossible to take an instantaneous photo, and yet have the whole of the field in focus. It then becomes necessary to stop down the lens and take what is known as a "time view." Mr. W. Z. Hutchinson, of the *Bee-keepers' Review*, succeeded once, and that view has been shown to the bee-keeping public. In the photo above shown it is evident that there was a light breeze at the time the exposure was made.—Ed.]

MORE LAWS FOR BEE-KEEPERS.

Shall the Mailing of Queens be Prohibited from California?

BY W. A. PRYAL.

Of laws 'tis said the country has enough;
But let bee-keepers have some wise and tough.

The machinery has been started in California to give the apicultural industry some legislation that will set the old don't-care-a-rap fellows to thinking. The present foul-brood statute is to be amended, provided the work Mr. Ralph Benton, of the State University, has been formulating succeeds in meeting the approval of the Solons now assembled at Sacramento. Mr. Benton is aiming to place the inspection of infested apiaries more under the control of the authorities of the State University, at the same time allowing the appointment of county foul-brood inspectors to remain in the hands of the supervisors of the several counties as at present. It will be more binding on the supervisors to make appointments when petitioned to do so. The University Inspector of Foul Brood will have co-extensive authority with the county officer, and he will have power to appoint deputies to assist in the work. This will allow of scientific investigation; at present it is said some of the inspectors are ignorant of what a genuine case of foul brood is like, as is so often the case when politics has a hand in the filling of scientific positions. The amended law will weed out poor or bad inspectors.

There is one thing about the amended statute, as drafted by Mr. Benton, I do not think should be put in force for some years to come, and that is the provision making it compulsory for all queens and their attendant bees passing inspection by the foul-brood inspector; in fact, they must be accompanied with a certificate of inspection, as are consignments of trees and plants, before they can enter this State; and if not so certified they must be placed in a hive for sixty days, and be subject at the expiration of that period to final inspection by the officer. If no sign of foul brood or other disease inimical to the best interests of California bee-keepers has manifested itself, then the bees and queens will be admitted.

My objection to this is that, owing to the fact that as many Eastern States have no properly constituted officer who could give a queen-breeder a clean bill of health for his bees and queens, it would be a hardship on a reputable breeder to hold his bees up on that score. Then I believe it would be an injury to a bee-keeper and the exporter as well to have bees held up at the post-office or express office until some far-away inspector could be brought upon the scene to poke the poor bees in the ribs and look down their throats to see what they had for breakfast, or to find how their alimentary system was. Mr. Benton agreed with me that, while the provision would ultimately be beneficial to our bee-keepers, it was better to wait a few years until a like law was enacted in the Eastern States where bee-keepers raise queens, before this provision should be in full force and effect. So I believe he will have the proposed law so changed.

Then he makes provision for an annual meeting of foul-brood inspectors. This is good; but I am afraid the interest will die out in a few years. By making such meeting a part of the annual meeting of the State Bee-keepers' Association it will provoke more interest and be far more beneficial. In fact, I believe it will bring about a



BOKHARA CLOVER GROWING TEN FEET HIGH.



BEE-KEEPING GOES WELL WITH POULTRY-RAISING.

greater attendance at such meetings. The new law, if passed, will allow for the printing of the report of proceedings of inspectors' conventions—a good thing in itself, but it would also be good, and perhaps better, as I suggested at the Monterey meeting, if the State would make provision for the printing of the proceedings of the State Bee-keepers' Association. Such aid is already given the horticulturists, viticulturists, mining interests, I believe, and the horse-racing outfit—the latter a useless waste of the people's money.

In order to carry on the work to be placed in the hands of the University pathologist, an appropriation of \$2500 is asked. This sum is modest compared with some appropriations that are demanded from the public treasury; but, taken in connection with the salaries of the various county inspectors, the amount to be paid for stamping

new laws into our statutes and making needless appropriations for this, that, and the other thing, to burden a long-suffering tax-burdened people. But the bee-keepers have never asked much; they now seek an intelligent means of overcoming an evil that has long embarrassed them. The proposed law is worth trying. May it be passed; and should it prove ineffectual it can be changed.

Oakland, Cal.

[Unfortunately we have not a copy of the proposed amendments; but from the general article above, the reader may infer something of their import. If the section relating to the sending of queen bees through the mails from other States into California be stricken out, we see no reason why the amendments should not receive the unanimous support of all the bee-keepers. In offering this suggestion, perhaps some may feel

out foul brood will be considerable. Yet as the honey industry is no small one in this State, and materially adds to our prosperity, we can well afford all that it costs. There are thousands of leaks that, if stopped, would allow beneficial enactments to be made for many purposes. I mention this for the reason that I have always been opposed to piling



HIVES ON LONG BENCHES TO KEEP THE ANTS FROM BOTHERING THE BEES.

The legs of the benches stand in cans filled with pine tar or carbolineum.

that we are inspired by selfish motives from the fact that we sell queen-bees; but as California is so far from us, our trade with that State practically amounts to nothing as other queen-breeders are much nearer; so that whatever action the legislature may see fit to take would not affect us. But if the law should require all queen-bees from other States, by mail, to be inspected before they are turned over to the consignee, the result would be the actual prohibition of the traffic in queens. This would mean hardship to the bee-keepers of California, making it practically impossible for them to introduce any new blood from other States.

As a matter of fact, we do not see how the inspector, no matter how competent he may be, can determine whether a queen with her attendants in a cage has disease germs in her alimentary canal. Nothing but dissection would show this, and this, of course, means the killing of the queen. Even if the inspector were disposed to allow the passage of such queens, the delay in the postoffice until such inspection could be made would very probably result in the death of the queens especially in the inaccessible mountain districts.

Some years ago we conducted a series of experiments, taking queens from foul-broody colonies and putting them in healthy ones. In no single instance was foul brood transmitted in that manner. We seriously question whether it is possible to carry disease through a queen, especially after she has been placed in a new environment on new food for a period of several days. Indeed, the McEvoy treatment itself, which is now recognized as a standard cure, applies no treatment to either bees or queens other than to remove them from their honey and combs and give them new food. That is precisely what the queen-breeder does when he picks up a queen and a few attendants and puts her in a mailing-cage. Hence it follows that, if the queen should be taken out of a diseased colony, and sent through the mails, such queen could not carry the disease. In any event, no reputable queen-breeder would think of taking a queen from an infected colony and sending her to a customer.

We see no good reason, therefore, why queen-bees and their attendants in an ordinary mailing-cage should be inspected before delivery to the consignee.—Ed.]



THE KENNEDY SISTERS, WITH THEIR BROTHER, WHO HAVE MANAGED AN APIARY FOR THE LAST SIXTEEN YEARS.

BEES, POULTRY, AND A FARM.

A Sure Way to Keep Ants out of Hives.

BY BERT H. MASTERS.

I have my colonies on stands or benches. My idea in placing them on stands is to keep the ants away. I put ashes under the stands to prevent the grass from growing. Under each leg of the stands I place small lids, filled with pine tar, which need replenishing about twice during the summer. This is the best remedy I have ever tried.

The poultry business works very nicely with bee-keeping. I have about 400 chickens, which have been averging from 12 to 14 dozen eggs per day. I arrange my work so that neither the bees nor poultry interfere with farming; and as I give these side lines only my spare moments I get value received for my labor.

Edison, O., Dec. 29.

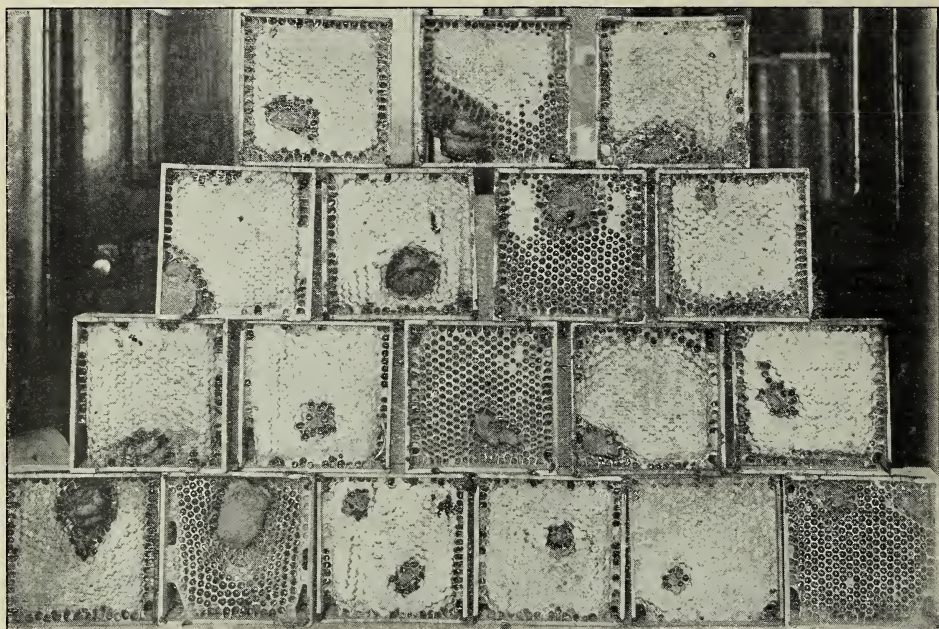
BEE-KEEPING FOR WOMEN.

A Good Record from an Apiary Managed by Two Ladies.

BY LOUISA C. KENNEDY.

After our father was taken from us, sixteen years ago, my sister and I carried on the apiary. That was the spring when everybody lost nearly all his bees. We lost all but eighteen queens with a mere handful of bees for each—perhaps not more than a pint of bees to the queen. We fed and built them up and then divided them until we had 35 good colonies. That would have been a pretty good honey year if we had only had the bees to gather it. As it was, we sold about \$102 worth of honey. Since then we have had some pretty good honey years, and a good many very poor ones. The poorest year we sold only \$31 worth of honey; the best, \$578 worth.

The A. I. Root Co.—I am not keeping any bees, but, like Mr. Thatcher, of New Jersey, I greatly enjoy reading Mr. Root's Home talks, and hope he will continue them for years to come.
Reading, Pa., Nov. 9. H. B. SHOLLENBERGER.



A PILE OF SECTIONS DAMAGED BY THE NESTS OF A CERTAIN KIND OF WASP.
These insects construct cellular nests on the comb foundation.

The greatest number of colonies we ever had at any one time was 93; the fewest, 18. During the sixteen years we have received for honey sold, \$3496.99. During this time our expense for the apiary has been \$576.66. Upon the whole I think that is not so bad for two women, pretty well along in years, to do. During the last few years we have had our brother to help us with the heaviest of the work, such as taking off honey (we have always worked for comb honey), fixing up the bees for the winter, etc.

This present year the fore part of the season was so wet and cold the bees could not work. When it did become dry and warm they tried to make up for lost time. We got about 3000 sections of honey and about 600 more this fall. We had 60 colonies, spring count, and we now have 72 good strong ones in winter quarters.

Curran, Illinois.

COMB HONEY DAMAGED BY WASPS.

BY E. F. ATWATER.

The accompanying illustration shows how some of our honey is damaged by the nests of a kind of wasp. These insects will hunt over piles of supers stacked up in shops at the yards; and if they find somewhere a small opening they enter and construct cellular nests of mud, almost always selecting the sheet of foundation upon which to begin work. If the supers are not carefully inspected when put on the hives, we have results as shown. However, with a little care probably only 50 to 100 sections will be damaged in this way, out of a crop of 15,000 to 20,000 sections.

So, certainly this wasp is not a very serious enemy of the comb-honey producer.

Meridian, Ida., Dec. 16.

[This is indeed an interesting exhibit. Probably not many of our subscribers are troubled with any thing of this kind.—ED.]

OUTDOOR WINTERING.

Is it Practical to Close the Outside Entrance to the Hive?

BY E. N. WOODWARD.

As a learner in the field of bee culture I have been questioning the truth of the oft-repeated statement that bees, when packed or wintered in outdoor cases, will consume more honey than when placed in the cellar or in bee-repositories. My contention is that they will not, if the outdoor cases are properly constructed and the bees packed in the right condition.

To determine this question to my own satisfaction I am experimenting with a method which I put into operation a year ago, and which I am trying again this present winter. One of the important features of this method is, that the outside entrance to the hive is closed entirely.

In this latitude (Southern Michigan) and all through the zero belt, it is useless to try to winter bees without ample protection. For this reason I construct my winter boxes large enough for about three inches of packing all around, with six inches on top. I also use old newspapers quite freely.

In front of each hive is a square entrance or inset, or we might call it a vestibule, on the outside of which is placed an adjustable storm-door, as illustrated on page 1327, Nov. 1, last year.

Now, to carry out my plan and to determine whether or not my theory is correct, I close this outside entrance by sliding the door down, thus making it tight and perfectly dark, with no playground for the bees except this enclosed vestibule.

When I close this outside entrance, about the middle of December, not a bee can fly until it is opened in the spring, from the first to the middle of March.

I am aware that this will not agree with the theory that bees require a large amount of ventilation, and some one will exclaim, "You will smother your bees, sure." Not a bit of it; you can never fence the air out from that *enclosed air-chamber*. It will penetrate from every direction, and through every crack and crevice exposed to the weather; and the bees, when thus confined in total darkness with a somewhat even temperature, will lapse into a half-unconscious state, and sleep their time away through the long winter months.

It is a well-known fact that hives of bees placed in a narrow trench, buried beneath the surface, and covered with straw, leaves, and earth, with perhaps two feet of snow, and with no visible ventilation, will winter in good shape, and not a large amount of honey will be consumed. When I have closed up my bees for winter they have been in as good a condition as when wintered in a trench, with no direct ventilation in either case.

It must be understood when we pack our bees that no frost can enter, and that moisture will not condense but pass away by the process of absorption and evaporation. It should also be understood that the temperature surrounding the hives is very much lower than when they are placed in the cellar at a temperature of 45 degrees; and instead of that "contented hum" so often spoken of in good cellar wintering, every thing is silent.

The bees, secluded as they are, have passed into a quiescent state and remain somewhat dormant, bordering upon a state of hibernation. I have opened some of my hives from the top at different times during the winter, and find them closely clustered and quiet, and I say to them, "Sleep on," so cosy do they seem to be in their little bed; and I am sure they are not consuming any more honey (it may be not so much) than when more active in a warm cellar. To test this method I am willing to sacrifice a few colonies, if need be. The result is what we are after.

Hillsdale, Mich., Jan. 15.

[While this looks good, we advise our readers to go very slow about shutting their outdoor bees in the hives. We tried it one winter on some two hundred colonies and lost nearly all of them, while all the other colonies, not so shut in, in the same yards came through in good order. Others have had the same experience.

The plan works very well during the fore part of winter; but it is toward spring when trouble comes. Our correspondent, if we mistake not, will be a sadder but wiser man next spring. Yes, he will save his stores but may not have any bees to use them.

Wintering bees under ground in trenches should not be taken as a parallel case. In the

first place, mother Earth helps to keep up a uniform temperature; and if the soil be sandy, fair results may be expected. But here again the beginner should go slow, for trench wintering will work only in certain localities. The climate must be cold and the soil sandy.—ED.]

PROTECTING COLONIES FROM THE COLD WINDS IN EARLY SPRING.

How to Provide Natural Shelter for the Apiary in Order to Avoid Spring Dwindling.

BY E. D. TOWNSEND.

There seems to be quite a diversity of opinion as to the proper time for setting the bees out of the cellar in the spring. Here in Northern Michigan, April seems to be the month; and there are no cases that I know of where bees are taken out later than this. During very unfavorable spring weather it is probable that bees are better off in the cellar during the most of April; but the cellar must be a good one, and one that is properly ventilated, or the bees will become uneasy. Even in unfavorable weather it would be better to have the bees out of doors in the spring rather than to have them get uneasy in a poorly ventilated cellar. In this northern location bees go into winter quarters early in November; and in order to have them in such condition that they can stand the confinement up to the latter part of April they need the very best winter food and the best conditions that can be obtained in the way of a cellar.

We will suppose that for some reason the bees are not wintering as they should, so that they appear uneasy. This uneasiness keeps the temperature high, and brood-rearing commences. Under these circumstances the admission of fresh air does not seem to quiet the bees entirely, and nothing but a good flight satisfies them. It is best, therefore, to take them out of the cellar and place them on the summer stands as soon as there is a possibility of their having a chance to fly. Experienced bee-keepers often have their bees in such condition during the winter that it is necessary to remove them for a flight as early in the spring as the weather permits; and if this is so, what can be expected from the inexperienced bee-keepers? Probably the only way is to set the bees out of the cellar on the first favorable day in the spring, and then manage, if possible, to get them through the cold bad weather of April and May to be ready for the honey-flow in June. It is my purpose here to tell how this may be done.

SELECTING A SHELTERED LOCATION.

The ideal location for an apiary is a clearing of about two acres in the midst of woods. I like to have the timber surrounding this apiary of second growth, for the second growth is denser than the first, and affords a better protection against the prevailing winds in the spring. Then if I could have this timber to my liking it would be about fifty feet high.

Two acres of clearing is twice as much land as one is likely to need for the hives. Some might ask why it is necessary to clear off so much when

one acre would be sufficient, and also why it would not be better to have the timber as tall as possible so that better protection would be provided by the tall timber around the smaller enclosure. Such a condition, however, is just what we do *not* want, for howling winds might be blowing overhead that would chill every bee that ventured above; and, at the same time, if the sun were shining the temperature inside the enclosure would, perhaps, be such that the bees would venture out and be lost. It can be seen that, with twice as much of a clearing, and with the timber only 50 ft. high, there is some circulation of cool air in the yard, which will hold the flying forces back whenever the general weather conditions outside are unfavorable. The fortunate man is the one who has just enough outside protection and no more. With no outside protection at all, as in cases where the hives stand exposed to the full force of the wind, during breeding time in the spring it is very difficult for colonies to build up to the proper strength for the early honey-flow in June. A high board fence is of but little avail for this outside protection, for it protects the hives only enough to entice the bees out of doors when it is too cold for them to fly, so that they are caught in the cold wind and lost.

Remus, Michigan.

PEDDLING HONEY.

Making Collections; How to Liquefy Large Quantities of Honey.

BY W. A. H. GI' STRAP.

For some years I sold about all my honey by wholesale, and might have never seriously contemplated a better plan had not a poor honey year nearly forced me to peddle much of my crop. Just how I did it might not be the best plan, but some of my ideas may be worth telling.

Most of my sales were made from a spring wagon on the cover of which my advertisement was plainly lettered. The wagon-cover was white, and on either side of the wagon was the word "Honey," large enough to be read across the street, while my name and address were of smaller lettering, all made of dark paint. On the back part of the wagon-cover the word "Honey" was lettered so it could be read over a block away. Most of my town sales were made in Modesto, a town of perhaps 3500 people. I began at the east side of town, and made a house-to-house canvass, up one street and down the next, shuttle fashion, till the west side was reached. When peddling on Fourteenth Street, all houses facing between Fourteenth and Thirteenth were visited, and so on. The bulk of my sales were made at the homes. Frequently a lady would take the honey and request me to call on her husband at the shop or store for the pay, and it would take only a few minutes in the evening to make collections for the day. Often a lady would not want the honey at the time, but would want it, say, two or three weeks later, and I made it a point to supply the honey on time. If a person really wanted the honey, and did not have the money on hand at the time, I would reply something like this: "You know

your business better than I do. If you want the honey, take it and leave the money at Maze's drugstore when you get it. Maze is a square fellow, and I shall get the money all right."

Many, both in country and town, would take the honey on those terms, and the loss by bad accounts was very small. Mr. Maze really liked to do free collecting for me, as it brought prospective customers to his store.

One of the leading grocers said it increased his honey sales when the town and surrounding country became interested in honey by my efforts. When a prospective customer on my beat had already inferior honey, adulterated or otherwise, it was a part of my business to trade for it, for very few will buy honey when they have any kind of honey on hand. Occasionally a person would think my honey was adulterated, and it sometimes took a quarter of an hour to convince such a doubter, but it had to be done before I left.

Granulation of our honey is one of the most troublesome things in the peddler's way. The best solution I have tried is a boiler, over 7 feet long and nearly 2 feet wide by 20 inches deep, inside measure. The sides and ends are made of 1½-inch redwood boards well bolted together. The heavy galvanized-iron bottom extends 4 inches past the body of the tank at each end (to the end of the side-boards), up a little at each side and up a foot in front as insurance against fire that may flash up from the furnace. The sheet-iron bottom was fastened to the wood by screws through white lead. The lid (which should not be turned down when melting honey) is of matched Oregon pine fastened on with strap hinges. The brick furnace is deep enough to make room for weeds, brush, or vines for fuel; and I regret that I used six-inch pipe instead of eight-inch; for when using weeds it sometimes smokes the room. A slatted bottom keeps the iron from sagging. By using two slatted trays, one longer than the other, and held in place by brick, I can melt honey in five-gallon cans, and in one and two quart jars at the same time. Honey in Mason jars *must* be melted well, while in the cans it is not necessary to melt it for sale. This boiler is also fine for melting combs for the wax-press.

Owing to change of farming plans it is not likely I shall peddle much more—only fill local orders. But it is delightful to hear the boys say to their mothers, "Here comes the honey-man!" It is also interesting to hear the ladies say, "I am so glad to see you come."

Each person talked to must be provided with one of Dr. Miller's circulars, "The Food Value of Honey."

Ceres, Cal., Dec. 4.

ENCOURAGING RAINS IN CALIFORNIA.

THE following, just received from G. F. Merriam & Son, will explain itself:

San Diego Co. has had over three inches of rainfall within two days, or four within a week, and all Southern California has had a good soaking.

G. F. MERRIAM & SON.

San Marcos, Cal., Jan. 22.

We do not know whether enough rain has fallen yet to insure a crop; but if it keeps on at this rate California bee-keepers will be wearing smiles on their faces.

HEADS OF GRAIN

FROM DIFFERENT FIELDS

STRAIGHT WORKER COMB BUILT BY A COLONY WITHOUT A QUEEN.

On page 932, Aug. 1, R. F. Holtermann says the building of worker-cells naturally is a sure sign of the presence of a queen. I have found an exception, if that is the rule. While out in the country I transferred a colony of bees that had been in a box hive about a month. When I opened the old box I found that the bees had eight or nine nice sheets of comb, about 9 inches long by 12 wide. They had about a pound and a half of honey, and the comb was as clean and white as any I ever saw. It had never had brood in it, with the exception of a very little drone brood scattered about in three or four combs, which showed that there had been laying workers or possibly a queen that had never mated. There were no eggs at the time. If a queen had been in the hive, there would have been many cells of drone brood; but there were not over 75 if that many. There were fifteen or twenty queen-cells started all over the middle of the combs, which shows the bees were trying without success to raise a queen.

L. S. DICKSON.

Kuitawa, Ky.

[There is no absolute proof to show that there might not have been a queen in the box at the time the comb of which you speak was built. In a box hive you can't be sure of anything. In any event we are inclined to think Mr. Holtermann, in the quotation, put it a little strong. Worker comb will sometimes be built where there is no fertile queen in the hive.—Ed.]

CAPPED BROOD IN DECEMBER.

In October, when examining my 40 colonies I found that over half of them did not have stores sufficient to last them through the winter. I bought 500 lbs. of granulated sugar, got a tin can which held 30 lbs. of water and sugar, and put into it 15 lbs. of water. Then I set the can on the stove until the water began to simmer, when I took it off the stove and stirred in 15 lbs. of sugar which made a syrup of one-half sugar and half water. I commenced feeding Oct. 1, and fed a quart of syrup to each colony for 24 days. On the 24th of October I examined the colonies again, and found that they had plenty of stores, and the brood-combs full of young brood capped over. I didn't examine the bees again until Dec. 7, which was a warm day, and I looked through all of the hives again that I had fed, and found young brood capped over at that date, and in good shape. I believe that fall feeding is a great advantage.

JAMES W. BELL.

Bedford, Ky., Jan. 5

[After feeding the bees as you did, it is not at all surprising that you found brood in the hives, even as late as January, considering your climate, which, of course, is milder than what we have here. Very often late feeding and brood-rearing will use up nearly all the stores. One should be careful to see that a sufficient supply is left after brood-rearing ceases.—Ed.]

WHY DO THE GOLDENS KEEP LEAVING THE HIVES?

I have two colonies of bees—one a leather-colored Italian, the other golden. They are outside on their summer stands, protected by a shed. The golden Italians are always trying to get out in this cold weather, and, naturally, they get lost. I gave them a two-inch opening, then changed to five inches. The front is darkened with boards. Then, again, I bring a bag over the whole, and yet they press out. What do you think is the reason? Is it too warm? The other colony does not act that way.

Detroit, Mich., Dec. 24. F. G. WALTER.

[We can not understand why your goldens should fly out when the other bees failed to do so. The fact is, in our locality they do not winter as well as the ordinary leather-colored bees that have not been tampered with so much in breeding to produce color. Nearly every spring we have noticed that the colonies of goldens will have abnormal quantities of dead bees out in front of the entrance, while the darker strains will have comparatively few.]

Our experience with goldens in winter has been decidedly unsatisfactory, although we do not deny that some strains of them may winter well.—Ed.]

CLOVER NOT KILLED; GOLDEN ITALIANS.

So far as I can learn, the clover is not killed in this vicinity. There is a very heavy growth here.

I have eight colonies of golden Italian bees. Do you think they are as good as or better than other Italians? Would they stand the winters as well in this climate? They are very quiet, and nice to handle.

FRANK ROWE.

Pleasant Hill, Mo.

[See answer to Walter, just preceding.—Ed.]

CAN FOUL-BROODY COLONIES BE TREATED DURING WINTER?

I am having my first experience with foul brood. It developed late this fall. I did not discover it until the middle of this month. Winters are mild here. We winter on summer stands. Bees fly more or less every few days. Can they be treated any way to advantage during winter, having no extra combs of clean honey? I moved to this locality last spring, and found I got into a hotbed of foul brood. There are some old mossbacks here who keep their bees in old gums.

P. S.—How would it do to confine all hives with wire netting, then go through them and cut out the dead brood of diseased hives, and remove such hives to a cellar for the rest of the winter?

Canon City, Colo.

W. G. WRIGHT.

[There is not much you can do in mid-winter; but all empty combs should be melted up and the wax converted into foundation. Combs that contain some honey should be extracted and then rendered up. The empty hives should be scorched out as per directions in our booklet, "Diseases of Bees." Next spring we would advise shaking every colony on to foundation as soon as the warm weather begins, and before very much brood is reared. The combs should be extracted first and then rendered into wax. No other procedure, if foul brood has got well started in your

yard, will give you relief from the disease. Treating here and there a colony is only partially effective, for the probabilities are that the disease will continue to break out here and there and everywhere, causing you no end of trouble.

Referring to your postscript, you could take the bees down cellar, remove the diseased combs, allowing the bees to cluster on those that appear to have no dead matter in them. This will involve considerable work and loss of bees; but we would not undertake to do any thing until next spring. The old mossbacks with their gums should be referred to your foul-brood inspector. He can compel them to transfer and treat the colonies.—Ed.]

PROPOLIS — FROM WHAT GATHERED? GETTING CANDIED HONEY OUT OF COMBS; THE FORMALIN TREATMENT.

I have sent you a few buds from a balm-of-Gilead tree. You can see that some substance is oozing out of the buds now. I think this is what the bees gather and convert into propolis.

My two-frame automatic extractor worked to perfection. There was some candied honey left in the combs. This I intend to dissolve with water, then while the combs are still moist I should like to treat them with formalin. Do you think it would be more effective then? Please send me directions for using this treatment.

After cleaning and treating these combs I intend to use them above an excluder, for extracting purposes only. W. C. SORTER.

Wickliffe, O., Dec. 24.

[No doubt bees gather some gum from the buds of the balm-of-Gilead. As a matter of fact, it is probable that propolis is gathered from several sources. Any thing of a gummy nature bees will at times appropriate; and it has been assumed on the part of bee-keepers that they make out of these various gums their bee-glue, or propolis. The very fact that this glue varies in color according to the locality would seem to argue that the character of it is modified by such gums as the bees are able to gather in the vicinity of their hives.

As to the honey candied in your combs, the general plan is to soak them in warm water for a time, put them in an extractor and throw out that portion which has been dissolved, as you propose. Another soaking may remove it all. Still another plan is to give the combs after their warm-water bath to the bees in an upper story; but, all things considered, it is better to use the extractor; and if the extractings are not all dissolved, warm them up until they are, and feed them back to the bees, as it will be too thin to bottle without souring.

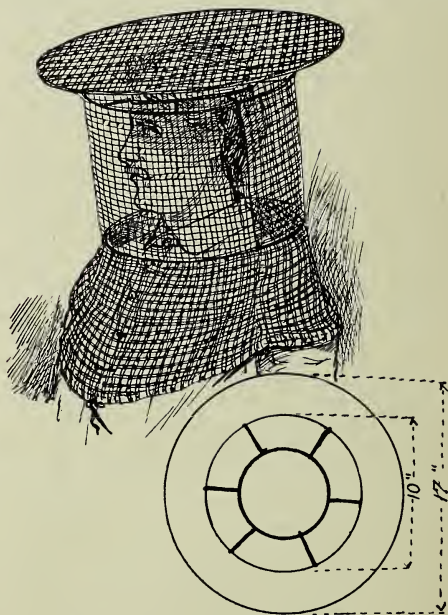
We would advise you to let the bees clean the combs up perfectly, then treat them with formalin if you desire. The plan usually advocated is to use the fumes of the gas made by melting the solid substance over a slow fire or wetting cloths in the formalin liquid that is sold by druggists, and placing these in the compartment to be fumigated. The objection to the formalin treatment is that the average bee-keeper does not appreciate the importance of making a hermetic sealing for a room or box in which the combs are placed, and where they are subjected to the fumes of the

gas. Unless the combs are put into an absolutely tight box or compartment while being treated, little or no good may be accomplished. If the combs have been taken from diseased colonies we would by all means advise melting them up and converting the melted wax into foundation. Experiments show that, if one uses the wax-press properly, there will be enough wax secured to pay for the foundation and leave a little something besides.—Ed.]

AN ALEXANDER VEIL SUPPORTED ON THE TOP OF THE HEAD.

For two years I have used a bee-hat of my own design that suits me much better than any thing else I have ever seen. The hat is practically the same as the Alexander veil, but is improved by a rim projecting beyond the wire cloth to shade the eyes.

To build the hat I make two wire hoops of telephone wire, one to form the top of the wire cloth, 10 inches in diameter, and one 17 inches



in diameter, over which cloth is stretched and sewed firmly. A piece of the same material 10 inches wider is sewed over on the back of the wire-cloth cylinder for a protection to the back of the neck. I want a skirt sufficiently large to come down over the shoulders, and I use a piece of cloth 50 inches long and 18 wide, hemmed at the bottom and gathered at the top, and fastened to the bottom of the wire cloth. I would have the wire-cloth cylinder only 9 inches deep.

Another improvement is a skeleton crown in the upper part. It is made by tying a shoestring around the head as you would measure for a hat, and with this for the "hat-band" extend projections to the wire cloth outside of the walls in all directions, and make them fast. This raises the hat off the shoulders, makes a circulation of air

(and bees too if they chance to get inside) above the head, and causes the arrangement to fit and hold its position like an ordinary hat. For solid comfort on a hot day in the boiling sun I have yet to find perfection; but this arrangement, for me, comes the nearest to it of anything I have ever seen.

HENRY STEWART.

Prophetstown, Ill.

[This looks like a very good arrangement, and doubtless is all that our correspondent claims for it.—ED.]

YOUNG WHITE CLOVER KILLED; PROSPECTS GOOD FOR ALSIKE-HONEY FLOW.

I find that the white clover is hurt badly, as its roots are only superficial. All the young clover that came from seed this year is dead, and about three-fourths of the runners are dead; but there is enough left to make a moderate stand late in the season. The ground is absolutely full of seed, however, and that may give a full crop, but not likely, as white clover rarely blooms the first year.

I find about one-fourth of the alsike dead, or stunted badly; and even at that, if it does not get killed by frost there is such an abundance of it that it will make a bumper crop any way. The red clover is practically unhurt.

The danger to alsike and especially white clover lies in the fact that, having lain dormant so long, they are likely to take an unseasonable growth if there should be any warm weather this winter, and get pinched by freezing. It did this two years ago in the spring, and we had a complete failure. Alsike is our main dependence here now. It is a great honey-plant.

Redkey, Ind., Dec. 8. G. W. WILLIAMS.

FOUL BROOD IN NEW JERSEY; THE SUPPORT OF ALL BEE-KEEPERS IN THAT STATE ASKED FOR IN ORDER TO SECURE A FOUL-BROOD LAW.

Mr. Editor:—Feeling that you would be glad to aid the New Jersey Bee-keepers' Association by publishing their appeal I append a copy below:

Foul brood is rampant in many parts of New Jersey. In some localities it has swept out entire apiaries. This has been particularly true in Hunterdon Co. It seems to be on the increase in some of the southern counties of the State. In one instance it was found scattered throughout a large apiary, and the owner was obliged to apply wholesale treatment to the whole yard last summer. Then there are scattered throughout the whole State the small careless bee-keepers with three or four to a dozen colonies, and many of these are in old box hives. The disease continually lingers among this class of bee-keepers. They do not attend bee-keepers' conventions nor read bee-papers, nor do they believe they have the disease. They are in all localities, and the up-to-date bee-keeper finds it impossible to keep his bees free from disease under such circumstances.

Taking all these conditions into consideration it is imperative that something be done to stop the ravages of foul brood in our State.

The New Jersey Bee-keepers' Association, through its executive committee, has prepared a draft of a foul-brood law, and will have it presented to the legislature at its present session. And now comes our appeal:

The executive committee wants and must have the support of every interested and progressive bee-keeper in New Jersey; and that support it must have at once, that we may get our law passed at the present session of the legislature, and in operation the coming season.

The present members of the association are a unit in support of the law; but the membership is small compared with what it should be. Twelve counties do not at present have a single member. We want to present a solid front from Sussex to Cape May, and from the Delaware to the Atlantic. "In union there is strength."

What would the executive committee say, when we go before the legislature, if asked, as we probably would be, how united the support of the bee-keepers is, to have to reply that only eight counties have members, and twelve counties are without a single member?

Then there are other reasons why we wish to increase the membership. The more members, the more funds in the treasurer's hands, and that means more practical and more interesting programs. We are planning to hold a field meeting next June, and a two-days' annual meeting next winter. Then if our membership increases, and includes every county, we shall be able to get an appropriation from the State, as we are a branch of the State Board of Agriculture. The present secretary of that Board is in hearty accord with us. Further, we are planning to make our association more educative, and more helpful in marketing our honey. We have at our fingers' ends both New York and Philadelphia, two of the most extensive honey markets in the United States, besides numerous smaller residential towns, as markets for our honey. We must take more advantage of these.

We end with an appeal to every reader of GLEANINGS in New Jersey to join at once. Dues but 50 cents per year. Remit by postal order or check to the secretary. Act at once. Also write a few lines, stating your experience with foul brood, and if you are surrounded by the careless bee-keeper with box hives.

Yours for a foul-brood law in 1909, and for the advancement of the New Jersey Bee-keepers' Association.

EXECUTIVE COMMITTEE:

W. W. Case, President.

J. H. M. Cook, A. G. Hann, E. G. Carr, Vice-presidents.

A. G. Hann, Secretary and Treasurer, Pittston, Pa.

[This is a good move. Let the New Jersey bee-keepers take notice.—ED.]

FOUL-BROOD LAW NEEDED IN IOWA.

Iowa ought to have a foul-brood law, for I am informed that the disease is getting quite a start in this State. I believe that every State adjoining Iowa has a foul brood law.

Our representative from this county is a bee-keeper, and will do all he can to get a foul-brood law passed. Would it not be a good plan for the bee-keepers of Iowa to meet, and organize an Iowa State bee-keepers' association? We should then be in condition to get a law passed. I am willing to do all that I can.

Silver City, Iowa.

T. L. SHAWLER.

[GLEANINGS will be glad to help in any way possible. The first important thing to do is to organize a State bee-keepers' association.—ED.]

CONDITIONS IN OKLAHOMA GOOD FOR BEES.

Mr. Lemon states that he has been told that bees could not be kept here. I think that is a mistake, as there are several small apiaries near my place, and several quite large ones in Eastern and Central Oklahoma. Of course I could not say as to Mr. Lemon's locality. With what little experience I have had I find that what Mr. Lemon says in regard to the winters is about right; but the bees could be put in a cellar if the losses were too heavy.

J. W. JACKSON.

Curtis, Oklahoma, Jan. 11, 1909.

CONDITIONS IN NEW ENGLAND.

Might I suggest you have some articles on bee-keeping in New England? Wherever I go in this section I find only empty hives, discouraged failures, and a general idea that bees can do nothing here.

J. E. SMITH.

Newton Center, Mass.

[One of our department editors, J. E. Crane, of Middlebury, Vt., represents New England. Perhaps he can explain the conditions above mentioned.—ED.]

OUR HOMES

By A. I. Root

For God so loved the world that he gave his only begotten Son, that whosoever believeth in him should not perish, but have everlasting life.—JOHN 3:16.

HAPPY SURPRISES.

Some years ago I told you of my many "happy surprises" that at that time met me almost every day, and I think I told you that if we were leading humble, honest lives, we had a right to expect happy surprises. Well, they are coming yet, and I want to tell you of some of them. I am glad to tell you that some of them, at least, have to do with spiritual things as well as the things of this world.

When I wrote about that "common-sense shoe" in the Christmas issue I had not the remotest idea that Mr. Coward was a Christian worker; but I felt safe in giving his business the strong words of praise I used, for I felt he was doing missionary work for tired feet and tired bodies, whoever he might be. You can imagine, therefore, the surprise and pleasure the following letter gave me. Let me explain first, that this letter comes from Mr. F. J. Root (a brother of our good friend W. P. Root). He is connected with the *American Grocer*, No. 90 West Broadway, New York. Here is the part of his letter referring to James S. Coward:

Mr. Coward is a strong Methodist, and runs a noon-day prayer-meeting on Greenwich St. I have bought a large part of my shoes there since I have been in New York—25 years. He is an old friend of Mr. Barrett, publisher of the *Grocer*, and they have an enormous trade. I was talking with one of the men the other day in the repair department. He says he takes in on an average 150 pairs of old shoes every day to be repaired. They keep 24 men busy selling shoes on one side of the store, and about as many women. Coward has built all this up from the humblest beginnings. There are lots of different styles of shoes, but he advertises these homely things most. He owns a shoe-factory in Massachusetts, and Barrett says he is probably making \$100,000 a year. His son is with him. It is a great shop. It is only around the corner from us.

When I read the above I said, "May God be praised that we have at least a few rich men who are not only glorifying God in their daily vocation, but are not ashamed to strive to combine business and religion."

Well, a little later I had another "happy surprise" from the same source. I got a letter from Mr. Coward in regard to some shoes I had ordered, and in the letter was a little book. I should call it a pretty little testament, only it contained only the book of John. Well, I was almost startled to read on the first outside cover these words:

"3:16—God's greatest gift to A. I. Root."

It was all in print except my name, and that was so neatly written in that it almost seemed as if it was the work of the printer too.*

When I opened the book, on the very front page I saw something that startled me still more. Friends, what I saw there was evidently intended for myself alone; but knowing me as you do I am sure you will excuse me for giving it here in print. 'This is what I saw, in large plain type:

*The little St. John testament mentioned, I find is published by the American Bible Society; but somebody (I presume friend Coward) has pasted in an extra leaf over the title-page. This extra leaf is put in so neatly (rounded corners like the rest of the book) that one never suspects it was not printed in. This leaf contains the words I have quoted.

FOR GOD SO LOVED

A. I. ROOT

THAT HE GAVE HIS ONLY BEGOTTEN SON
THAT HE, BELIEVING IN HIM, SHOULD
NOT PERISH, BUT HAVE

EVERLASTING LIFE.

John 3:15-16.

Now please notice the delicate compliment conveyed to any friend you may wish to send such a book to. The book is printed in such a manner that all you have to do is to fill in the name. Such a present then means to the one to whom you send it that you not only love that friend, but you want to tell him that God also loves him. To get the matter before you clearly, let me explain that this little book is almost the only recognition I have had from Mr. Coward in regard to the write-up I gave his lifework. Instead of writing me a nice letter, as most people would do, he simply says to me in this way, "God loves you," implying by that, that what I said was out of love to God and humanity, and not because I wanted to do him a favor, for he was and is an utter stranger to me.

Now, this is not all. The head of our shipping department (Mr. Jacob Borger) came to me just before I left home with a little book in his hand. There was a comical look on Jacob's face that I knew from past experience meant something. Can't I stop long enough here to say that Jacob has been with me toward thirty years? He was one of the very first that God in his loving kindness permitted me to bring to the feet of that "only begotten Son." Some of you may remember the story of the barefooted boy I found in that first mission Sunday-school, at Abbeyville. Well, what Jacob had in his hand that winter morning was a little testament such as I have been describing. As he handed it to me he said:

"The B. & O Railroad Co. send you this little book."

Supposing it was something about directions for routing cars of bee-hives, I took it; but when I saw it was a little testament, the book of John, I said:

"Why, Jacob! do you really mean that the Baltimore & Ohio Railroad Co has gone into the business of distributing testaments to their patrons?"

Had I sent them a testament the world might understand it; but the idea of a great railroad company stopping its enormous traffic, say for just a minute, and then to go to handing out testaments—the whole thing was too ridiculous. Jacob gravely enjoyed my surprise for a moment, and then burst out in a regular schoolboy laugh; and, if I remember correctly, several of the other hands joined in with him. A little later, when he explained that it was the Y. M. C. A. branch of the B. & O. who were permitted to do this work in the name of the B. & O., I understood it better; but may God be praised for the fact that the testaments are going out, and that it is the B. & O.'s money that pays for them. Once more, may God be praised for the great work the Y. M. C. A. is now doing all over the world. I am going to close this Home paper with an extract from the 34th Annual Review of their work, entitled "Association Men." See if you do not agree with me that it is a wonderful "boiled-down" sermon:

Heb. 2:1-6, v. 3.—*God's Question.*—Here is a question which you can't answer, which I can't answer, which the angels can't answer, which the Devil can't answer, which God himself does not answer. "How shall we escape if we neglect so great salvation?" If I neglect my health, how shall I escape sickness? If I neglect to exercise, how shall I escape weakness? If I neglect my mind, how shall I escape imbecility? If I neglect my prayers and my Bible and gatherings of godly people, how shall I escape atheism? If the train is coming down the track 60 miles an hour, and I am on the track, and neglect to move, how shall I escape being run over? If I neglect salvation, how shall I escape hell? You may know some way—the Bible does not mention any. Remember: "There is none other name under heaven, given among men, whereby we must be saved."

As a further glimpse of this godly shoemaker, I give below the closing part of a business letter:

I am always pleased to know of men who, in the rush and crush of this world, take an active part in the Sunday-school, as so few have the time and inclination to do so. I wish you could see mine, over six hundred, and our orchestra of twelve pieces of music; and we know well how to sing "Jesus, lover of my soul," and I, on the 26th year, its superintendent. Do not think I am bringing it in as an advertising card—far from it! I am only a poor shoemaker, saved by his grace.

New York, Jan. 23.

JAMES S. COWARD.

HEALTH NOTES

T. B. TERRY'S DAILY MENU; JUST WHAT AND WHEN AND HOW HE TAKES HIS DAILY FOOD.

Judging from the large amount of correspondence that I am getting on the subject I am sure that many people will read the following, from a recent issue of the *Practical Farmer*, with great interest.

WHAT TO EAT.

From a very kind letter we extract the following: "Will you not for the benefit of new readers give in detail a bill of fare that suffices for you and Mrs. Terry, say for one week? It will be a favor gratefully received. I know what it is to be broken down in health. A doctor once said I might live a week. But since finding out that health comes from fresh air, proper water, diet, etc., I have been quite well."

First, it should be said that Mrs. T. and myself face different conditions. She, from choice, is an active, busy woman, on her feet, working about during the 6 or 7 hours a day when I am sitting down doing head work. I need to be rather more particular about diet than she does, although I take plenty of exercise. Now, please understand, good people, that we are not specially urging you to take up with our diet. No, you may live quite differently and still enjoy good health. My sole desire is again telling you what we eat is to call your attention to how little and what simple food one really needs; to the small amount of cooking that is necessary, and to the splendid health and cutting-down of household work that is the result. In this line I am always ready to write and talk. You will remember that wife has the same pure air to breathe that I do, and the same cold air winter nights. And she is a good breather, rather better than I. She drinks as much of the same clean rain water as I do, or more. She sleeps rather more. She is in the same light in the home, and sunshine. Of exercise she gets plenty, and does not ever need to overdo. We each weigh about 160. You will look far before you find a more healthy woman than Mrs. Terry.

FULL DETAILS OF OUR TWO MEALS.

My usual breakfast for years has been two ounces, more or less, of dry flaked wheat, eaten with butter, and much fruit, fresh when possible, or dried and soaked up in pure water. Nothing but just this. Once in a while, if bread looks tempting to me, I eat a slice of that, at least two days old, instead of the wheat. For a few minutes at the close of the meal I may be decidedly hungry for more food. But this feeling soon passes off and am never hungry again until the time for night meal. And my head is far more clear, and I can stick to writing longer and not get tired, than I ever remember being able to do before. In fact, I hardly know what tired is now; but I used to. I rarely eat any flaked wheat at night. There are two reasons: It does not seem to give quite as good results. Some others have reported the same, but not all. Then I want to keep in touch with cooked food, partially so it will not be so much of a change when I go away from home. My usual supper has been a few California walnuts, say 6 to 10 ground fine; bread and butter, or potato, white or sweet, or bread and potato (they go well together) and fruit. Occasionally we may have rice instead of potato. And for a meal or two we may have beans or cheese or peanut butter to take the place of walnuts. But I eat but one protein-

furnishing food at a meal, and very little of that. Once in a while I may eat a very little dried beef in place of nuts, but I eat practically no meat when at home. I do not like to be troublesome when visiting. Wife's usual breakfast is white bread and butter, percolator coffee, and fruit. Her supper is indicated above, except that she eats a little meat now and then—not much. We have both learned not to overeat of protein, thus bringing on old-age troubles. It is not uncommon for us to set on cold boiled potatoes, bread and butter and fruit, and make a delicious supper. I never enjoyed meals more than I do now. We eat home-made graham and white bread.

T. B. TERRY.

WHERE THERE IS A WILL THERE IS A WAY—
ESPECIALLY WHEN ONE IS TRUSTING IN GOD.

My dear Brother A. I. Root:—Twenty-six years ago, while employed as brakeman on the Panhandle Railway, and while in the act of coupling cars, I stepped on a round stone which turned with me, and I lost my balance. I started to fall face forward. In falling forward I was caught between the bumpers of the cars, and had my entire lower jaw and tongue crushed off. I was taken to the hospital, and was told there that I had only a very few hours to live. This was not very encouraging, but I made up my mind that "what could not be cured must be endured," and that I might as well make the best of the situation and try to be as cheerful as possible. This seemed to have a good effect. The first 48 hours the doctor thought several times that I was gone, and I had given up all hope, closed my eyes, and was just waiting for the last summons. After lying in this stupor for about six hours I commenced to revive and get better. I improved day by day, and, being in excellent health before my injury, my wound soon healed up, and in five weeks I was permitted to leave the hospital and go home.

During the time I was in the hospital I could not speak a word nor utter a sound. I wrote on my tablet, asking the chief surgeon who had charge of me if I would ever be able to talk again. He looked down at me very pitifully and said, "No, my boy, you will never be able to speak again, as you have nothing to talk with, as every organ of speech is gone." This was a sad blow. It seemed too hard to be compelled to go through the world maimed and crippled the way I was, then not ever be able to speak again. I felt like giving up in despair, when the old adage of "where there is a will there is a way" came to me. I thought, "I have the will; will the way be provided?" The Lord heard my faint plea for help, and came to my aid. After leaving the hospital I went home to my mother to let her take care of me. Then I made up my mind that if there was any way of talking I was going to have it. At first I could not even utter a sound—not even grunt; but I would not give up. I only worked that much harder. Finally I got so I could make a sound. It was only a faint grunt; but that gave me courage, and I worked still harder. I did not limit myself to a ten or a twelve hour day, but kept at work every minute I was awake, even though it was the dead hour of midnight or the small wee hours of morning. Perseverance gained its reward. I learned to talk, and have enjoyed the great blessing of being able to talk for the past 25 years. This I consider is one of God's special blessings. When the surgeons and doctors all told me that I would never be able to speak again, suppose I had folded my hands and made no effort to try to talk. I would now be going round through the world making all my wants and wishes known by the use of pencil and paper; but my accepting that old adage, "where there is a will there is a way," was the means of my being able to enjoy the great blessing of speech for the past 25 years. The Lord will pour out great blessings on us if we will only let him.

Now in regard to eating. At first I could not eat any solid food at all. I had to live on liquid nourishment altogether. Finally I got so I could eat solid food by having it prepared especially for me. This I kept up for several years by watching very closely, and cutting out all foods that did not agree with me, or that hurt the stomach. For the past two years I have not been able to eat much but bread from the whole-wheat flour (a special flour I get from Chicago); butter and extracted honey, with a cup of cocoa; but for the past eight weeks I have not even been able to take that. I had to live on raw eggs and milk, chicken broth, beef tea, etc. Some days I could not even take that. I got so weak that I could hardly walk across the room; yet I would not call in a doctor. Previous to this I had taken treatment from quite a number of doctors, but could not get any relief or benefit. I got to studying the matter over in my own mind, and came to the conclusion that, as I can not chew any of my food, but have to swallow it without being masticated, my stomach had to masticate and digest too, thus causing the stomach to do double work all the time, which it has been doing for the past 25 years. What man can stand it to work day and night right straight along? He can stand it for perhaps one or two days and nights, then he must have rest. I felt that, if I could live on a liquid nourishment for a few weeks, and let the stomach rest, it would do me more good than any thing else. This I have been doing, and am now feeling better, and trust that I shall soon be able to take my brown bread and honey again.

I take great pleasure in working with my bees. They have been a great help to me in the way of health. When I felt so

distressed, and hardly able to drag one foot after the other, I would go out to the bees and sit down and watch them; and in watching the little fellows tumble over each other in their haste to get into the hive, it seems to drive away the blues and makes me feel better, and I get much pleasure in working with them. I trust that I may be able to meet you some time, as I feel that we are old friends.

JOHN T. ELLIOTT.

Colliers, W. Va., Sept. 26.

Friend E., we are exceedingly obliged to you for this little story, for it contains a wonderful truth, and one that may help, nobody knows how many other fellow-travelers. It is this: That where one sets to work resolutely with a faith in himself, in humanity, and in God, wonderful things may be done. First, your life was doubtless saved, at the time of that accident, by a cheerful resignation to the will of God. You did not get frightened or rattled, even if the doctor did tell you that you could live only a few hours. I once had a similar experience. Something got into my windpipe and stopped my breath. My fright because I thought I was going to die very much aggravated the trouble. When, however, I faced the dark valley, and said mentally, "Thy will, not mine, be done," I quieted down and the distress let up. My good wife's encouraging words also helped me greatly. I feel quite sure that many people lose their lives through fright, when, if they would make an effort to keep cool, and trust in God, they would come out all right. And you unfold to us another wonderful truth—namely, that even where the organs of speech are damaged or gone, nature will, in time, supply something that can be used as a substitute; and I do not know but many dumb people might even now learn to talk enough to make their wishes known, if they tried as hard and perseveringly as you did. May God bless you in your efforts to learn what further lessons the great Father above is striving to teach you. T. B. Terry, Cornaro, and perhaps thousands of others have regained their health in just the way you learned to talk; and I am firmly persuaded that God has placed the means within our reach to get over and climb out of almost any trouble in the way of disease and sickness, if we can only put our hands in his and make use of all the means that lie within our reach.

T. B. TERRY, IN THE PRACTICAL FARMER, ON TYPHOID FEVER.

Not long ago a young woman from Iowa was visiting us. On her way here she stopped in a city for a week. When she got here she was pretty well used up. A bowel trouble set in which became quite serious. One morning she did not get up, as she had been bad off during the night. She thought it would be best to send for a doctor, and was evidently quite worried. Of course, there was grave danger that typhoid fever would be the result. At this point I quietly told the lady that I understood exactly what the trouble was and how to get rid of it; that if she would eat absolutely nothing, and drink water freely, four glasses during the first hour, and lie still, that she would be comfortable soon. She did as directed, and hot things were placed at her feet and about bowels to keep her very warm. The water given was our pure filtered rain water. The result was that she was dressed and downstairs in a few hours, and fairly well the next day. The trouble was she didn't have strength to digest the food eaten, and it decayed in the intestines, and nature was rushing it out to prevent further poisoning of system and dangerous inflammation. No more food for a time, and pure water, and rest, was all that was needed. In the old way with typhoid fever there was a long tedious illness, and about one in four died. In the new way, the natural common-sense way, 1211 cases of typhoid have been treated and quickly cured by some great doctors in Boston, without a single loss of life, it is stated. I have just been reading about it. How marvelously it backs up what we have been trying for several years to impress on our readers. The teachings of these "Hints" can no longer be called radical, as they were at first. The greatest physicians and authorities in the whole world

are fast coming out in full accord with simple, natural ways of preventing disease and curing it.

I wonder how many of our doctors will endorse the above—at least that part of it to the effect that four glasses of water, taken inside of an hour, keeping still, and eating absolutely nothing, will ward off an attack of fever. And then this other one that, on the average, about one in four die with the ordinary treatment; that in over a thousand, treated in "the common-sense way," every one recovered. In our locality at the present time there are very few deaths from typhoid fever in the course of a year—perhaps one in ten, or perhaps not more than one in twenty-five. We have had some experience with it in our own family, but it was mostly years ago. Since we have been careful about our drinking-water there has been none of it, and only a little in our neighborhood and locality. If the above statements are all true, it is not only a startling fact but a terrible arraignment of our methods in the past.

A GREAT CITY DAILY THAT DOES NOT ACCEPT WHISKY ADVERTISEMENTS.

Mr. Root—You speak in the last issue of GLEANINGS about wishing there were a large newspaper that would not accept liquor advertisements. There is one in Worcester, Mass., the Worcester Telegram, which has the largest circulation of any newspaper in Massachusetts (outside of the Boston papers) that will not take an advertisement for even a cider-mill.

Worcester has gone "no license" two years in succession, for the first time in its history. I am sending you a copy of this morning's paper. Worcester going no m-ans "no" for almost every town around it. There were only two adjacent towns that went "yes" last year, and it is said that, very strongly, they have had enough and will go dry next year.

Our town, I am sorry to say, is a strong license town normally, but it went dry last spring, largely on account of Worcester going "no." We hope to carry it again next year. I wish we could vote on the question here by counties as you seem to in Ohio. One town dry and the next one wet amounts to about the same thing as both going wet.

I want to express my appreciation of GLEANINGS in all its departments; and should I give up my bees, as long as I have a dollar to spare I will be a subscriber if you keep up its present standard.

E. C. PUTNAM.

Millbury, Mass., Dec. 9.

Our friend is right about it. The sample copy of the Worcester Telegram he sends is a larger daily, if any thing, than any paper we have in Cleveland. It has been published 23 years, and yet there is not a whisky advertisement in it from beginning to end. In fact, the copy he sends is full of the temperance war from start to finish. May God be praised for at least one great daily that will "dare to be a Daniel."

BIG SUM OFFERS ARE SPURNED BY WRIGHTS.

PAU, France, Jan. 19.—All the money which the Wright brothers have gained by taking prizes offered for aviation is insignificant compared with the sum they could earn by accepting the offers made by many local authorities, and the owners of certain fashionable resorts, as well as by the officials of French railways, to induce them to carry on their experiments in different neighborhoods. The town has gone mad on the subject of flying. Street musicians are singing impromptu melodies with words glorifying the American brothers. A number of French painters have arrived, with the view of committing to canvas their first impressions of a real flying-machine, and exhibiting them at this year's saloon. A legion of photographers is also in sight, while scores of dainty damsels belonging to French high society may be seen to-day going toward the aviation ground, with cameras under their arms. In the hope that they may be able to get a snapshot of Wilbur Wright, who slept last night with his two workmen beside his precious machine. Mr. Wright tells the correspondent of the Chicago Daily News that he did not expect to compete at the forthcoming race from Monte Carlo to Cap Martin and back, since the distance and other conditions will not be sufficiently interesting. He added, however, that he might go over there "by the side entrance" with his machine to see how his colleagues are getting along.



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To obtain these and in addition apply a quality of galvanizing that will effectually protect against weather conditions, is a triumph of the wiremaker's art.

These are combined in the American and Ellwood fences—the product of the greatest mines, steel producing plants and wire mills in the world. And with these good facilities and the old and skilled employes back of them, we maintain the highest standard of excellence possible for human skill and ingenuity to produce.

Dealers everywhere, carrying styles adapted to every purpose. See them.

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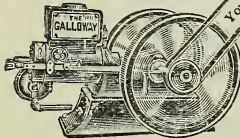
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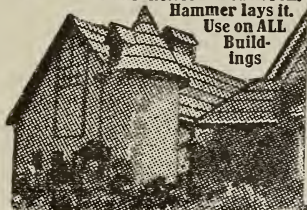
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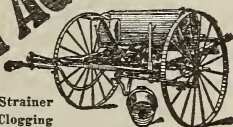
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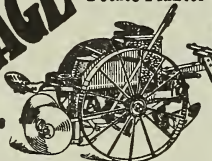
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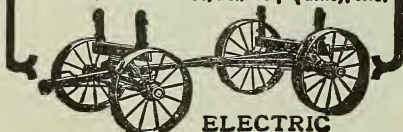
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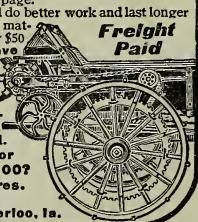


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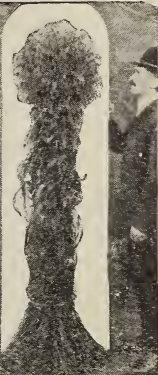
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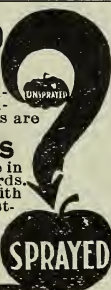
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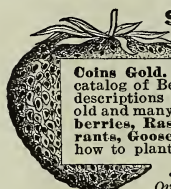


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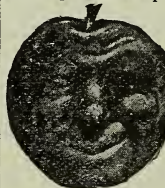
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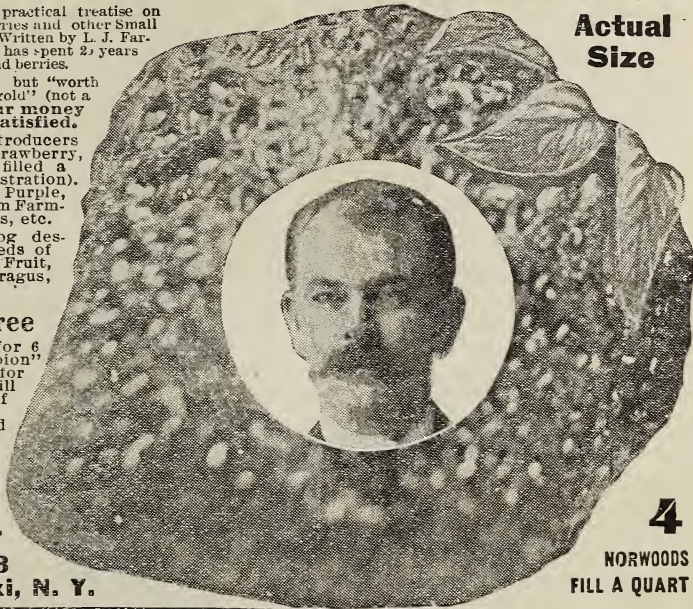
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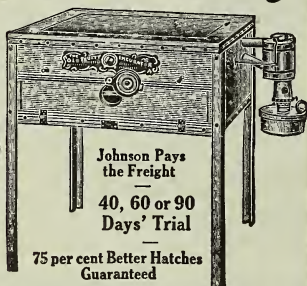
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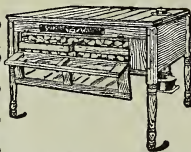


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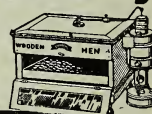
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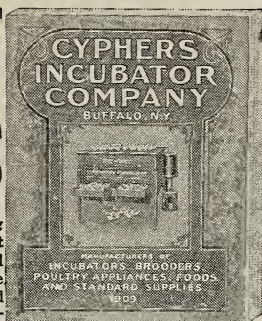
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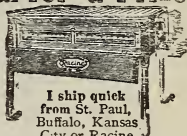


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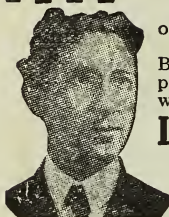
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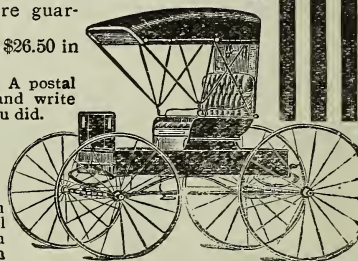
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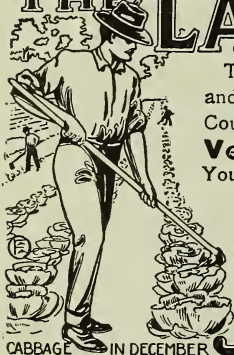
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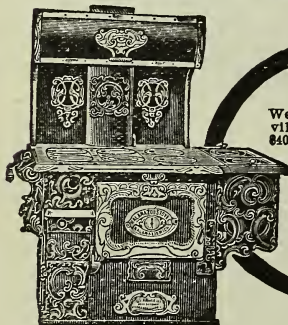
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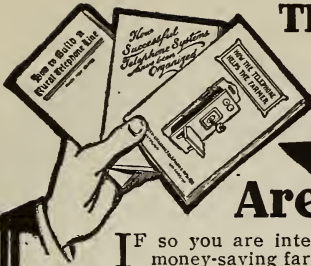
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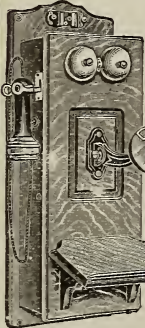
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W. P. SMITH, Penn, Miss.

Wholesale prices given on big stock of A. I. Root Co.'s bee supplies, on account of poor health. Send me your wants, and I will quote prices. Take Root's 1908 catalog prices. Delays are dangerous.
S. D. BUELL, Union City, Mich.

FOR SALE OR EXCHANGE.—Victor Royal talking-machine; 37 records, fine condition, and selections for any thing in bee-supplies I can use. What have you?
W. S. PANGBURN, Center Junction, Iowa.

FOR SALE.—One 22-caliber Marlin repeating rifle, new; price \$12.50. Also one double-barrel 12-gauge shotgun, in good condition, \$10.00 cash.
HERBERT FISHER, Southold, N. Y.

FOR SALE.—300 thoroughbred strawberry-plants for \$1.00. Standard varieties. Write to T. M. PALMER, Bidwell, Ohio.

FOR SALE.—One ten-inch Root foundation-machine, good as new. Price \$20.00.
F. C. MORROW, Rt. 1, Blevins, Ark.

Great bargains in trees, shrubs, and plants. Send a postal for free catalog. WEST SIDE NURSERY AND FRUIT FARM, Postville, Iowa.

FOR SALE.—The Young comb-honey cutter for putting up comb honey in sealed containers. Send for booklet.
W. J. YOUNG, Arecibo, Porto Rico.

FOR SALE.—Sweet-clover seed, 15 cts. per pound, postage extra. Roots's supplies. ANTON G. ANDERSON, Holden, Mo.

FOR SALE.—Danzenbaker comb-honey hives and other bee-supplies. Write for prices. ROBT. INGRAM, Sycamore, Pa.

FOR SALE.—Bee-supplies at factory prices.
D. COOLEY, Kendall, Mich.

FOR SALE.—Lewis bee supplies, berry-boxes, and crates. Write for catalog.
W. J. MCCARTY, Emmetsburg, Iowa.

FOR SALE OR EXCHANGE.—Bee-hives for strawberry or raspberry plants. F. R. DAVENPORT, Rt. 3, Plainwell, Mich.

FOR SALE.—Fifty 8-frame (T) comb-honey supers, cheap.
P. W. SOWINSKI, Bellaire, Mich.

A BARGAIN.—One 120-egg Iowa incubator in first-class order, for \$5.00.
C. H. ZURBURG, Topeka, Ill.

Poultry Offers

FOR SALE.—Brown Leghorn, B. P. Rock, S. L. Wyandotte eggs; \$1.00 to \$1.50 per 15. Raised on separate farms. Write for full particulars.
F. C. MORROW, Rt. 1, Blevins, Ark.

Eggs for setting, from pure White Wyandotte chickens; 15 for \$1.00; \$5.00 per 100.
CECIL REPINE, La Otto, Ind.

A. I. Root's Bee-goods, Poultry-supplies, Seeds, etc.
STAPLER'S, 412-414 Ferry St., Pittsbngh, Pa.

Beechford Farm offers beautiful pairs of Columbian and Part-ridge Wyandottes. Young stock—\$3.00 and \$5.00.
W. ROBINSON, Beechford, N. Y.

FOR SALE.—Fifty fine White Leghorns (Wyckoff strain); some prize winners; all young; bargain at \$25.00. Write soon.
E. C. MILLER, Huntsburg, O.

GOLDEN BARRED ROCKS.—The new beauty and utility fowl. Plumage barred buff and white. Write for literature and a feather.
L. E. ALTWEIN, St. Joseph, Mo.

Situation Wanted.

SITUATION WANTED.—Young man studying bees by Root's Correspondence School of Apiculture. Wages no object.
H. E. LUCAS, Bertha, Minn.

WANTED.—Position on a farm, or help with bees by a young man of 19; good habits.
EMIL ANDERSON, Box 216, Anita, Pa.

Photographs.

Send me your photograph and see what nice pictures I will make you from it. Cabinet size, \$2.00 per dozen; 6 for \$1.50. Satisfaction guaranteed.
M. F. DECKER, Lock Box 34, New Florence, Pa.

Bee-keepers' Directory

Bee-keepers' Supply Co., Lincoln, Neb. We buy car lots of Root's goods. Save freight. Write.

Italian queens from direct imported mothers, red-clover strain, \$1.00. Circular. A. W. YATES, 3 Chapman St., Hartford, Ct.

Golden yellow Italian queens my specialty; 1909 price list ready. Safe introducing directions. E. E. LAWRENCE, Doniphan, Mo.

ROOT'S BEE SUPPLIES. Send for catalog.
D. COOLEY, Kendall, Mich.

Well-bred bees and queens. Hives and supplies.
J. H. M. COOK, 70 Cortlandt St., New York City.

For bee-smoker and honey-knife circular send card to
T. F. BINGHAM, Farwell, Mich.

ITALIAN BEEES, queens, honey, and Root's bee-keepers' supplies. ALISO APIARY, El Toro, Cal.

Golden-all-over and red-clover Italian queens; circular ready.
W. A. SHUFF, 4426 Osage Ave., Philadelphia, Pa.

QUEENS.—Improved red-clover Italian bees, bred for business, June 1 to Nov. 15, ntested queens, 75 cts.; select, \$1.00; tested, \$1.25 each. Safe arrival and satisfaction guaranteed.
H. C. CLEMONS, Boyd, Ky.

Quirin's famous improved Italian queens ready in April; nuclei and colonies about May 1. My stock is northern bred, and hardy. Five yards wintered on honey stands without a single loss in 1908; 22 years a breeder. Summer for sale.

QUIRIN-THE-QUEEN-BREEDER, Bellevue, O.

Breeding queens of pure Caucasian and Carniolan races—price \$3.00. Order from A. E. Tioff, Expert in Apiculture, with Russian Department of Agriculture, Kieff, Russia. Remit with orders. Correspondence in English.

SPECIAL NOTICES BY A. I. ROOT.

NELL BEVERLY, FARMER.

The above is the title of a beautiful new book of 190 pages that our old and much-esteemed friends of the *Rural New-Yorker* are giving their subscribers. I don't get time to read much fiction nowadays; but I thank God that I have taken time to read this story of a young girl who held on to the farm and cared for a fatherless and motherless family. The story is true, for Mrs. Root and I have passed through (or, rather, *struggled* through) most of the obstacles so vividly pictured that meet one who climbs to success in any one of the rural industries. A younger brother, who was bright and capable, but always wanting all the new appliances before he had the money to get them, and then getting excited about some other new thing before he had made a success of his previous purchase, is an exciting character. Nell's final determination, and her declaration of no more going in debt, ought to do a lot of good in more than one home. The grand finale of the book is when Nell made another "declaration of independence" by coming out in "open war" on the cider-barrel in the cellar that I fear still curses many a farmer's home. By so doing she saved poor wild reckless "Bob," and brought somebody else, who was still more contrary, over on the right side, and right into the great crowd of good men and women who are "turning on the searchlight" and hastening the time when God's kingdom shall come here into this world.

By all means subscribe for the *Rural New-Yorker*, and give this book to your boys and girls, and everybody else.

SPECIAL NOTICES

BY OUR BUSINESS MANAGER

We recently advertised a few shelf-worn books on bee culture and rural topics. The books on bees have been sold, but we still have a few good books on various farm and garden topics which are offered at reduced prices. Send for list if interested.

HONEY-EXTRACTOR AT A BARGAIN PRICE.

We offer for sale on the cars at shipping-point in Arkansas a No. 17 Cowan two-frame extractor with comb-pockets 12 inches wide. A new machine of this style sold for \$12.50. This is represented to be practically as good as new, and we offer it for \$9.00, subject to previous sale.

JAPANESE BUCKWHEAT SEED.

We have secured a nice lot of seed of the Japanese buckwheat, grown for us the past summer. As it is out of season we are willing to make quite a concession in price to reduce stock at present. For orders placed now, accompanied by payment, we will furnish seed in new bags, included without extra charge. One bushel, \$1.25; two bushels, \$2.25; ten bushels, \$10.50.

CLOVER SEED.

We have secured a good supply of alsike clover seed which we offer for sale free on board cars here, bags included, at 25 cts. per lb.; \$3.00 per peck; \$5.75 per half-bushel; \$11.00 per bushel; \$21.00 per bag of two bushels. We can supply white Dutch clover seed at the same price as alsike; also alfalfa at same price. Medium and Mammoth clover seed costs \$2.00 per bushel less at present market price.

SWEET-CLOVER SEED.

We have secured an additional supply of sweet-clover seed, and offer it, till further notice, at the following special prices: Unhulled white, 14 cts. per lb.; 10 lbs., \$1.20; 100 lbs., \$10.00; hulled white at 6 cts. per lb. extra; hulled yellow, also at 6 cts. per lb. extra. We have no unhulled yellow on hand at present, but have some on the way, and on arrival the price will be the same as the unhulled white.

Catalogs Received.

"Flowers for Springtime," by Mary E. Martin, Jericho Road, Floral Park, N. Y. This is a very good catalog for persons having a garden or small place. A novelty is the new Irish ever-blooming rose, hardy on Long Island.

"Olds' 1909 Catalog." Seeds for the farm and garden; by the L. L. Olds Seed Co., Madison, Wis. A special feature with this firm is seeds for farm use, though they have garden seeds as well.

"A. A. Berry Seed Co's 1909 Seed-book," Clarinda, Ia. This is a seed-book designed for farmers' use in the prairie States and other countries where the thermometer goes below zero.

"Burpee's Farm Annual for 1909; the Plain Truth about the best Seeds that Grow," by W. Atlee Burpee, Philadelphia, Pa. This is a catalog that interests truck-gardeners everywhere. Every gardener ought to send for a copy. It is strong on sweet-pea seeds and many garden annuals, such as the average house-keeper wants to grow.

"Ratekin's Seed-book for 1909," from Ratekin's seed-house, Shenandoah, Ia. Interesting to all farmers in the blizzard belt. Makes a specialty of seed corn.

"German Nurseries Garden Book for 1909," Carl Sonderegger, Prop., Beatrice, Neb. This catalog has a very full list of fruit and other trees for the blizzard belt. There are also full lists of kitchen-garden vegetables and flower-seeds for the home.

Storrs & Harrison Co., Painesville Nurseries, Painesville, O., send out their "Catalog for Spring, 1909." This is a very comprehensive catalog for the garden and home. All home-makers in Ohio, Indiana, Michigan, West Virginia, and Illinois should have a copy.

"Seed Annual for 1909," by The Livingstone Seed Co., Columbus, O. As usual this catalog shows a wide variety of good tomatoes. Mr. Livingstone has done more, probably, than any other living man to improve the tomato, and, of course, his firm is headquarters for seed. They have other seeds as well.

"Johnson's Garden and Farm Annual," by The Johnson Seed Co., 217 Market St., Philadelphia. This is a favorite catalog with truck-growers or market-gardeners, more particularly in the east and southeast of this country.

Currie Brothers Co.'s "Horticultural Guide for Spring of 1909," Milwaukee, Wis. This catalog is strong on farmers' seeds, but has also a good line of flower and vegetable seeds for the home.

"Catalog of the R. M. Kellogg Co.," Three Rivers, Mich. This is the usual splendid catalog of strawberry-plants offered for sale by the above company. Every grower of berries should secure a copy.

"Asters, Dahlias, Gladioli," by Ralph E. Huntington, Painesville, O. This is a unique little catalog, beautifully arranged and well worth paying for, but is free for the sending.

"The 1909 Descriptive Catalog of Wood's High-grade Seeds, and Guide for the Farm and Garden," by T. W. Woods & Sons, Richmond, Va. A very important catalog for the border States and the South.

"Alneer Brothers' Seed and Plant Catalog," by Alneer Bro's, Rockford, Ill. This catalog seems to be strong on vegetable seeds, also Rainbow pansies and peonies.

"Catalog of D. Hill," evergreen specialist, Dundee, Ill. This contains a fine list of beautiful hardy evergreens, firs, hemlocks, pines, spruces, junipers, cedars, arbor-vitae, etc.; also locusts, basswoods, and other deciduous trees.

"Annual Seed Catalog for 1909," by The Henry Field Seed Co., Shenandoah, Iowa—a large general list of seeds for the garden and farm.

"Northrup King & Company's Quarter-century offering of Sterling Seeds," Minneapolis, Minn. This is an extra-fine catalog devoted to meritorious seeds for the Northwestern States.

"Northern-grown Seeds, Plants, Bulbs, and Fruits for 1909," by L. L. May & Co., St. Paul, Minn. This is a very fine catalog of seeds pertaining to the farms and gardens of the Northwest. It has a beautiful cover-page illustration.

"Shumway's Seed Catalog," of Rockford, Ill. This is a large-sized catalog of farmers' seeds. It has a wholesale price for those who plant on a large scale.

BOOK REVIEWS.

MERRYBANKS AND HIS NEIGHBOR.

Here is a little book, issued some years ago, but new to thousands of our present subscribers, which is quite a departure from the usual order. It is not a work of fiction, because it is too largely founded on fact to be classed as such. Neither is it a treatise on something; nor is it a history, biography, theology, nor, in fact, any of the usual "ologies." It is a strange mixture of fact and fiction. In some respects it is an attempt to build castles in the air, and these are probably just such "castles" as the average country boy indulges in to his heart's content. As the author is A. L. Root, it contains a good deal about bees and bee-keeping; in fact, the hero blossoms out into a modern bee-keeper with all sorts of "bees in his bonnet." Like most men of his breed he was fond of experimenting in the art of agriculture with a view to eking out a slender income; and the story of haps and mishaps is carefully given here with a view, probably, to helping others who may follow in his footsteps. He has a droll way of relating his experience, which gives a zest to what would otherwise seem a plain unvarnished tale of joy and sorrow. There is a great deal of what newspaper men call inspiration; and doubtless many a farmer boy or village carl would be glad to read such a book, as it is sufficiently interesting to draw out the enthusiasm of young men of the right class, and to lead them on to a useful life. For this purpose it is recommended to those who can place a copy where "where it will do the most good"—that is to say, in the hands of home person seeking a vocation or an avocation. Price 25 cts. postpaid; or with GLEANINGS one year, \$1.10, postpaid.

BEE-HUNTING.

Bee-hunting has been a favorite avocation with the American pioneers for over a hundred years, and the description of a bee-hunt by Washington Irving is one of the delightful tid-bits of American literature. Yet no book has appeared on the subject until now, probably because bee-hunters are not bookish men. They prefer life in the open. The book before us is a rather small work, but it deals with a very simple subject which depends very largely for success on the acuteness of sense and general alertness of the hunter rather than the following of a set of rules laid down in a book. The author gives some kinks which are very important in the successful hunting of the bee, though the average reader may be inclined to pass them by as non-essential. He should give careful heed to these instructions, however, and he will doubtless achieve some measure of success, though there are few spots that require more real gumption than bee-hunting. Take the book with you in the spring, and earnestly seek nature's guidance. One of the "secrets" of the book is the use of coumarin essence, which is a substitute for vanilla, to attract the wild bees. The coumarin is extracted from sweet clover, which readily explains why bees are attracted by it. The author is Mr. John Lockard, who seems to have given the subject considerable attention. Price 25 cts. postpaid. We can supply it from this office.

THE A. I. ROOT COMPANY, MEDINA, OHIO.

Before buying your Comb Foundation, or disposing of your beeswax, be sure to get our prices on wax and foundation, or our prices on working wax into foundation.

We are also in a position to quote you prices on hives, sections, and all other supplies. We give **LIBERAL DISCOUNTS** during the month of February.

Remember that

DADANT'S FOUNDATION

is the very best that money can buy.

We always guarantee satisfaction in every way.

LANGSTROTH ON THE HONEY-BEE (new edition), by mail, \$1.20.

Send for our prices on Extracted, White-clover, and Amber Fall Honey.

DADANT & SONS, . . HAMILTON, ILL.

The
**Danz-
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baker
Hive**

MORE HONEY, BETTER HONEY, BETTER PRICES.

OUR FOREFATHERS kept bees in straw skeps, old boxes, or almost any thing that would hold them, paying little attention to their stocks, and using no convenient appliances at all. American ingenuity, in contriving new methods, has brought bee-keeping up to the high standard where we find it to-day, and every bee-keeper is seeking the best that the market affords.

In hives he can find nothing better or more satisfactory than the *Danzenbaker*. The dimensions of the brood-chamber are such that every inch of surplus honey is crowded up into the supers, where it will be available for the market. This insures well-filled sections and a higher percentage of fancy honey than can be produced in any other hive. Every season brings more reports of unusual success by the use of this hive. Mr. B. G. Elefritz, of West Virginia, wrote us last fall as follows: "Another season of the fullest success with the Danzenbaker hive. If any one wanted to transfer my bees into other hives he could not do it for \$5.00 each."

Mrs. Fannie Bonney, Iowa, says: "I have found a dealer in our county-seat who will willingly pay me four cents more per pound for honey in Danzenbaker sections than he does for the same grade in square sections put up in the common way."

Isn't it worth something to you to make every colony you have do its best, and then get the highest price possible for your crop? Tell us the number of colonies you have and we will tell you how much it will cost to put them all in Danzenbaker hives.

THE A. I. ROOT CO., Medina, O.

COMB FOUNDATION ^{and} SECTIONS

'Falcon' brand

The name of our famous line of bee-keepers' supplies which for nearly thirty years has been noted for that fine workmanship and material which have forced others to make a better grade of goods. **NONE ARE OUR EQUALS YET!**

Our workmen, who have learned the making of our brand of bee-goods, are still with us, and our customers are assured of that high grade of excellence which we have maintained in the past.

Our Foundation

"Falcon" foundation has won a reputation on account of its perfect manufacture, its cleanness, toughness, and the readiness with which bees accept it. No acid or other injurious substances which destroy the "life" of foundation are used in our special process. We clarify the best grades of pure beeswax, and by our process of sheeting subject it to enormous pressure until it finally passes through perfect foundation-mills, and is cut, papered, and boxed, ready for shipment. **SAMPLE FREE.** Every pound equal to samples. Write for prices. Highest price, cash or trade, paid for Beeswax.

Sections

We were the first to produce a polished section, and we have yet to see any sections equal to ours. Our special machines for sanding and polishing sections give bright, smooth, polished sections which can not be equaled. We use only selected basswood, the white part of the timber only being used. We furnish all styles of sections and supers for the same at one uniform price for beeway and one for plain. Write for prices and our catalog of supplies.

Air-spaced Hives

For northern localities there is no better hive for out-of-door wintering than the air-spaced, and it is just as convenient for summer management. An air space is the least conductor of sudden changes in temperature, and our Air-spaced Hives have given perfect satisfaction in the hands of practical bee-keepers in the North everywhere. The air-chamber may be filled with chaff if one desires. The same frames, supers, covers, and other fixtures are used as with the Dovetailed hives.

PRICE OF AIR-SPACED HIVES

8-frame, 1½-story, complete for comb honey, in flat, 1, \$2 80; 5, \$12.50
10- " 1½- " " " " " " " 1, 2.85; 5, 13.25

Air-spaced hives are cheaper than chaff-packed hives or than Dovetailed hives with winter cases, and are much less trouble, as bees do not have to be packed in fall and unpacked in spring.

We have on press a booklet for beginners, "Simplified Bee-keeping," and a circular of Beginners' Outfits. These give complete instructions for the beginner, and we shall be pleased to place on our list the names of all who request them; and as soon as printed, copies will be mailed free.

W. T. FALCONER MFG. CO., Jamestown, N. Y.

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SUBURBAN LIFE is almost indispensable to those who live and work in the country and smaller towns. It shows how to grow bigger and better flowers and vegetables; how to make house and yard more home-like and enjoyable; discusses ways of living; suggests inexpensive evening diversions; has interesting stock and poultry departments. Its pages are 11x14, the type is large and easily read; the pictures are all from photographs, reproduced with wonderful clearness.

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Enclosed find \$1.00 for which send SUBURBAN LIFE from April to July, with February and March FREE. I understand my money is **on deposit** and that you will return it if I am dissatisfied and say so.

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In every issue the "Pass Them Along" ideas give practical economies which will save every woman hundreds of steps and many a dollar. The "Month's Work" is a reminder of what needs doing indoors and out.

"Suburban Life is the most welcome visitor on our rural route—it is always so full of practical help."